JAMES R. HURFORD & BRENDAN HEASLEY

SEMANTICS
a coursebook

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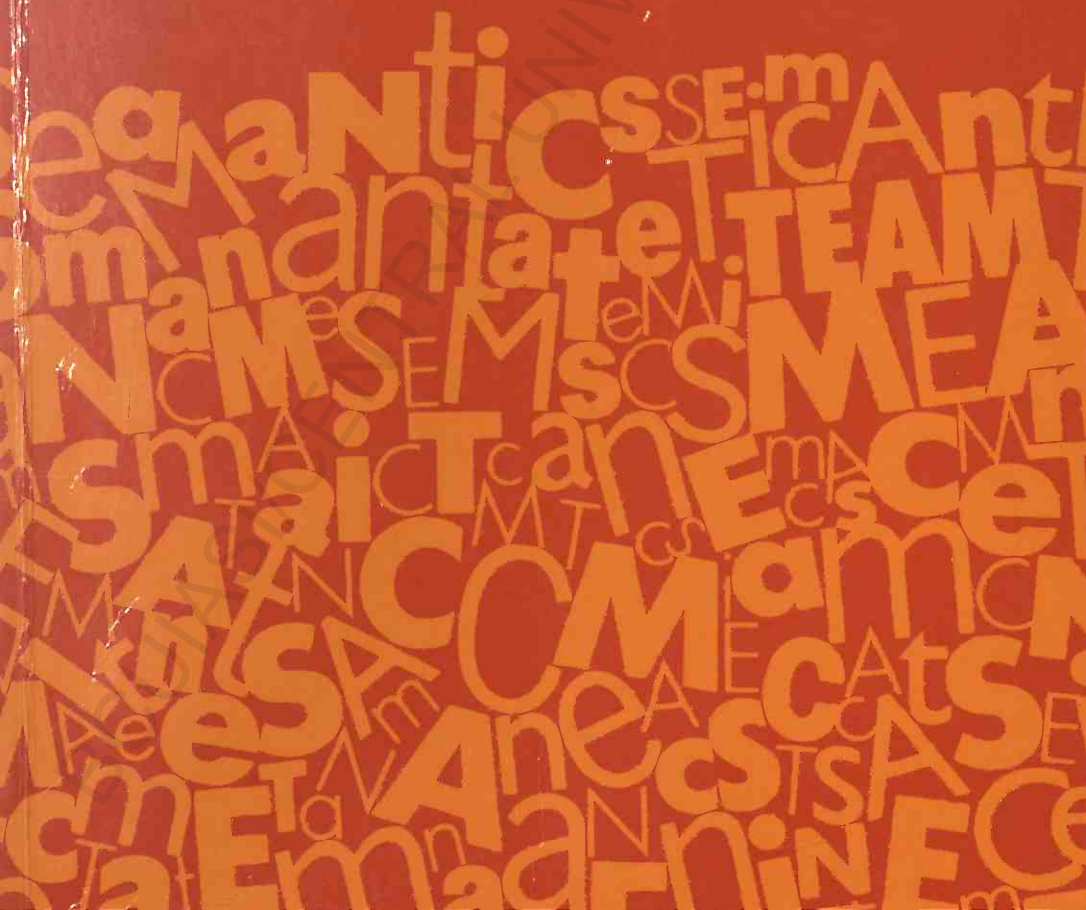

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Semantics: a coursebook

James R. Hurford
Professor of General Linguistics,
University of Edinburgh

and

Brendan Heasley
Consultant (Postgraduate Training),
Ain Shams University, Cairo.

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PREFACE

This book presents a standard and relatively orthodox view of modern linguistic semantics in what we hope is a clear, stimulating, and accessible format. Our emphasis is on getting the student at every stage to think for himself, and so to proceed through the development of concepts in semantics with the confidence and conviction that comes from doing practical exercises with them. The student should not skim the practice exercises, but should try to write down the answers to each batch of questions before consulting the answers given in feedback. The labelling in the text of definitions, examples, comments, etc. should help the student to find his way around in our exposition with ease. The entry tests at the beginnings of each unit should be taken seriously: they provide a way for the student to judge his own progress at each stage.

The book is suitable for first-year undergraduates in linguistics and will probably be useful to somewhat more advanced students for revision purposes. We believe that it will also be possible for a person working independently to teach himself the elements of semantics with this book. For students in taught courses, each unit, or couple of units, could provide a good basis for small-group discussion. Students should complete the units first, and discussion can focus on developing interesting and/or problematic aspects of the material.

No elementary textbook can cover everything that its authors would have wished to cover. We have been obliged to omit a number of interesting topics, including 'thematic meaning' (topic, comment, etc.), quantification in logic, tense and aspect, and the relation between syntax and semantics. We hope that the student's appetite will be sufficiently whetted by what we have covered to lead him to take an active interest in these and other more advanced topics in semantics.

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1 Basic ideas in semantics

UNIT 1
ABOUT SEMANTICS

Definition

SEMANTICS is the study of MEANING in LANGUAGE.

Comment

The rest of this book can be regarded as an example of semantics. It may seem to you that meaning is so vague, insubstantial, and elusive that it is impossible to come to any clear, concrete, or tangible conclusions about it. We hope to convince you that by careful thought about the language you speak and the way it is used, definite conclusions CAN be arrived at concerning meaning. In the first exercise below, we ask you to start to get yourself into the habit of careful thinking about your language and the way you use it, concentrating, naturally, on instances of such words as *mean*, *means*, and *meaning*.

Practice

Reproduced below is a well-known passage from Lewis Carroll's *Through the Looking Glass*. Pick out all the instances of the word *mean* (or *means*, or *meant*), noting which lines they occur in. (Some line numbers are given in the margin for convenience.) After the passage there are some questions for you to answer.

" . . . that shows that there are three hundred and sixty-four days when you might get un-birthday presents."

"Certainly," said Alice.

"And only one for birthday presents, you know. There's glory for you!"

"I don't know what you mean by 'glory,' " Alice said.

Humpty Dumpty smiled contemptuously. "Of course you don't – till I tell you. I meant 'there's a nice knockdown argument for you.' "

"But 'glory' doesn't mean 'a nice knockdown argument," Alice objected.

"When I use a word," Humpty Dumpty said in rather a scornful tone, "it means just what I choose it to mean – neither more nor less."

"The question is," said Alice, "whether you can make words mean so many different things."

"The question is," said Humpty Dumpty, "which is to be master – that's all."

(1) What word is the subject of the verb *mean* in line 6?

---

(2) What is the subject of the verb *mean* in line 9?

---

(3) What is understood as the subject of the verb *mean* in line 12?

---

(4) List all the instances (by line number) where *mean*, *means*, or *meant* has a personal subject, e.g. *I* or *you*. (Include instances already listed in the questions above.)

---

(5) List all the instances (by line number) in which *mean*, or *means*, or *meant* is understood as having as subject something linguistic, e.g. a word, or words. (Include instances mentioned in questions above.)

Feedback

(1) you (2) the word *glory* (3) it, or a word (4) lines 6, 8 (5) lines 9, 12, 12, 13

Comment

Lewis Carroll had brilliant insights into the nature of meaning (and into the foibles of people who theorize about it). In the passage above, he is playfully suggesting that the meanings carried by words may be affected by a speaker's will. On the whole, we probably feel that Alice is right, that words mean what they mean independently of the will of their users, but on the other hand it would be foolish to dismiss entirely Humpty Dumpty's enigmatic final remark.

Lewis Carroll's aim was to amuse, and he could afford to be enigmatic and even nonsensical. The aim of serious semanticists is to explain and clarify the nature of meaning. For better or for worse, this puts us in a different literary genre from *Through the Looking Glass*. The time has come to talk seriously of meaning.

Practice

(1) Do the following two English sentences mean (approximately) the same thing? *Yes / No*

I'll be back later and *I will return after some time*

(2) Is the answer to the previous question obvious to a normal speaker of English? *Yes / No*

(3) In the light of your reply to (2), if I ask "What did John mean when he said he'd be back later?", would you be giving the helpful kind of answer that I probably

want if you said "He meant that he would return after some time"? *Yes / No*

(4) In asking "What did John mean when he said he'd be back later?" is the questioner primarily asking
(a) what the SENTENCE *I'll be back later* means, or
(b) what JOHN meant in saying it? *(a) / (b)*

(5) A dictionary can be thought of as a list of the meanings of words, of what words mean. Could one make a list of what speakers (e.g. John, you, or I) mean? *Yes / No*

(6) Do you understand this question? *Yes / No*

Feedback

(1) Yes (2) Yes (3) No, this would be a statement of the obvious, and therefore unhelpful. (4) asking what JOHN meant in saying it, most usually. (5) No, speakers may mean different things on different occasions, even when using the same words. (6) Assuming you are a competent English speaker, yes, you do understand the literal meaning of the interrogative sentence in question (6); but at the same time you may not clearly understand what we, the authors, mean in asking you this question. We mean to point out that understanding, like meaning, can be taken in (at least) two different ways.

Comment

The word *mean*, then, can be applied to people who use language, i.e. to speakers (and authors), in roughly the sense of 'intend'. And it can be applied to words and sentences in a different sense, roughly expressed as 'be equivalent to'. The first step in working out a theory of what meaning is, is to recognize this distinction clearly and always to keep in mind whether we are talking about what speakers mean or what words (or sentences) mean. The following two definitions encapsulate this essential distinction.

Definition

SPEAKER MEANING is what a speaker means (i.e. intends to convey) when he uses a piece of language.

SENTENCE MEANING (or WORD MEANING) is what a sentence (or word) means, i.e. what it counts as the equivalent of in the language concerned.

Comment

The distinction is useful in analysing the various kinds of communication between people made possible by language.

Practice

Read the following conversation between two people, A and B, at a bus stop one morning. (The lines are numbered for reference.) Then answer the questions (1)–(8).

1 A: "Nice day"
2 B: "Yes, a bit warmer than yesterday, isn't it?"
3 A: "That's right – one day fine, the next cooler"
4 B: "I expect it might get cooler again tomorrow"

5 A: "Maybe – you never know what to expect, do you?"
6 B: "No. Have you been away on holiday?"
7 A: "Yes, we went to Spain"
8 B: "Did you? We're going to France next month"
9 A: "Oh. Are you? That'll be nice for the family. Do they speak French?"
10 B: "Sheila's quite good at it, and we're hoping Martin will improve"
11 A: "I expect he will. I do hope you have a good time"
12 B: "Thank you. By the way, has the 42 bus gone by yet? It seems to be late"
13 A: "No. I've been here since eight o'clock and I haven't seen it"
14 B: "Good. I don't want to be late for work. What time is it now?"
15 A: "Twenty-five past eight"

(1) Does speaker A tell speaker B anything he doesn't already know in lines 1, 3, and 5? *Yes / No*
(2) Does A's statement in line 7 give B any new information? *Yes / No*
(3) When B says "Did you?" in line 8, is he really asking A to tell him whether he (A) went to Spain? *Yes / No*
(4) Is there any indication that A needs to know the information that B gives him about travelling to France? *Yes / No*
(5) Does A's "That'll be nice for the family" in line 9 give B any information? *Yes / No*
(6) Do A's statements in lines 13 and 15 give B any information that he (B) needs? *Yes / No*
(7) At what point does this conversation switch from an exchange of uninformative statements to an exchange of informative statements?

_____

(8) At what point does the information exchanged begin to be of a sort that one of the speakers actually needs for some purpose in going about his everyday business?

_____

Feedback

(1) probably not (2) Yes, probably (3) No (4) No (5) probably not (6) Yes (7) with B's enquiry in line 6 (8) with B's question in line 12

Comment

All the things said in this conversation are meaningful in one way or another. But one must not equate meaningfulness with informativeness in a narrow sense. While it is true that many sentences do carry information in a straightforward way, it is also true that many sentences are used by speakers not to give information at all, but to keep the social wheels turning smoothly. Thus A and B's uninformative exchange

about the weather serves to reassure them both that a friendly courteous relationship exists between them. Even when the sentences produced are in fact informative, as when B tells A about his forthcoming trip to France, the hearer often has no specific need for the information given. The giving of information is itself an act of courtesy, performed to strengthen social relationships. This is also part of communication.

The social relationships formed and maintained by the use of language are not all courteous and amicable. Speaker meaning can include both courtesy and hostility, praise and insult, endearment and taunt.

Practice

Consider the following strained exchange between husband and wife. Then answer the questions (1)–(8).

Husband: "When I go away next week, I'm taking the car"
Wife: "Oh. Are you? I need the car here to take the kids to school"
Husband: "I'm sorry, but I must have it. You'll have to send them on the bus"
Wife: (ironically) "That'll be nice for the family. Up at the crack of dawn, and not home till mid-evening! Sometimes you're very inconsiderate"
Husband: "Nice day"

(1) This conversation includes three utterances which were also used in the polite bus stop conversation between A and B. Identify these three utterances.

---

(2) When the wife in the above exchange says "Are you?" is she thereby in some sense taking up a position opposed to that of her husband? *Yes / No*

(3) In the bus stop conversation, when A says "Are you?" (line 9), is he in any sense taking up a position opposed to B's position? *Yes / No*

(4) When the wife, above, says "That'll be nice for the family", is she expressing the belief that her husband's absence with the car will be nice for the family? *Yes / No*

(5) When A says to B at the bus stop "That'll be nice for the family", is he expressing the belief that going to France will be nice for the family? *Yes / No*

(6) Is A's remark at the bus stop "Nice day" a pointed change of subject for the purpose of ending a conversation? *Yes / No*

(7) What is the function of this remark of A's?

---

(8) When the husband uses these same words about the weather, above, what does he mean by it?

Feedback

(1) "Are you?", "That'll be nice for the family" and "Nice day" (2) Yes (3) No (4) No (5) Yes (6) No (7) part of a polite prelude to more interesting conversation (8) In the husband's case, the remark is used to end a conversation, rather than initiate one.

Comment

The same sentences are used by different speakers on different occasions to mean (speaker meaning) different things. Once a person has mastered the stable meanings of words and sentences as defined by the language system, he can quickly grasp the different conversational and social uses that they can be put to. Sentence meaning and speaker meaning are both important, but systematic study proceeds more easily if one carefully distinguishes the two, and, for the most part, gives prior consideration to sentence meaning and those aspects of meaning generally which are determined by the language system, rather than those which reflect the will of individual speakers and the circumstances of use on particular occasions.

The gap between speaker meaning and sentence meaning is such that it is even possible for a speaker to convey a quite intelligible intention by using a sentence whose literal meaning is contradictory or nonsensical.

Practice

Look at the following utterances and state whether they are intended to be taken literally (*Yes*) or not (*No*).

(1) Tired traveller: "This suitcase is killing me" *Yes / No*

(2) Assistant in a shop: "We regularly do the impossible; miracles take a little longer" *Yes / No*

(3) During a business meeting: "It's a dog-eat-dog situation" *Yes / No*

Feedback

(1) No (2) No (3) No

Comment

Examples such as these show that speakers can convey meaning quite vividly by using sentences whose meanings are in some sense problematical. To account for this, it is necessary to analyse at two levels: firstly, to show what is 'wrong' with such sentences, i.e. why they can't be literally true, and secondly, how speakers nevertheless manage to communicate something by means of them. Sections of this book are

devoted to both kinds of meaning, but rather more attention is given to sentence and word meaning.

We will now leave this topic and give some attention to the question of how one studies meaning – to the methods of semantics.

Practice

(1) Can two people hold an ordinary conversation without knowing the meanings of the words they are using? *Yes / No*

(2) Is it reasonable to say, if I use such English words as *table* and *chair* in the normal way in my conversation, communicating the usual messages that one does with these and other words, that I know the meanings of the words *table* and *chair*? *Yes / No*

(3) If one knows the meaning of a word, is one therefore necessarily able to produce a clear and precise definition of its meaning? *Yes / No*

(4) Conversely, if several speakers can agree on the correct definition of a word, do they know its meaning? *Yes / No*

(5) Do you happen to know the meaning of the word *ndoho* in the Sar language of Chad, Central Africa? *Yes / No*

(6) Would a sensible way to find out the meaning of *ndoho* be to ask a speaker of Sar (assuming you could find one)? *Yes / No*

(7) The word *ndoho* in Sar means *nine*, so it is not a particularly rare or technical word. Would any normal adult speaker of Sar be an appropriate person to approach to ask the meaning of the word? *Yes / No*

(8) If a native speaker of Sar insists that *ndoho* means *nine* (or the number of digits on two hands, less one, or however he expresses it), while a distinguished European professor of semantics who does not speak Sar insists that *ndoho* means *ten* (or *dix*, or *zehn*, however he translates it), who do you believe, the Sar-speaker or the professor?

Feedback

(1) No (2) Yes (3) No, being able to give the definition of the meaning of a word is not a skill that everyone possesses. (Studying semantics should considerably sharpen this skill.) (4) Yes, it would seem reasonable to say so. (5) Probably you don't. (6) Yes (7) Yes, although some speakers, possibly through shyness or embarrassment, might not be able to give you a perfectly clear answer. (8) the Sar-speaker

Comment

The meanings of words and sentences in a language can safely be taken as known to competent speakers of the language. Native speakers of languages are the primary source of information about meaning. The student (or the professor) of semantics may well be good at describing meanings, or theorizing about meaning in general, but he has no advan-

tage over any normal speaker of a language in the matter of access to the basic data concerning meaning.

English, like most languages, has a number of different dialects. Just as the pronunciation of English varies from one dialect to another, so there are also differences in the basic semantic facts from one dialect of English to another. Note that we are using 'dialect' in the way normal in Linguistics, i.e. to indicate any variety of a language, regardless of whether it has prestige or not. In this sense, every speaker, from the London stockbroker to the Californian surfer speaks some dialect.

It is not the business of semantics to lay down standards of semantic correctness, to prescribe what meanings words shall have, or what they may be used for. Semantics, like the rest of Linguistics, describes. If some of the basic semantic facts mentioned in this book don't apply to your dialect, this doesn't mean that your dialect is in any sense wrong. Try to see the point of such examples on the assumption that they are factual for some dialect of English other than your own.

Almost all of the examples in this book will be from standard English. We assume that most readers are native speakers of English and hence know the meanings of English expressions. This may seem paradoxical: if semantics is the study of meaning, and speakers already know the meanings of all the expressions in their language, surely they cannot learn anything from semantics! What can a book written for English speakers, using English examples, tell its readers? The answer is that semantics is an attempt to set up a theory of meaning.

Definition

A THEORY is a precisely specified, coherent, and economical framework of interdependent statements and definitions, constructed so that as large a number as possible of particular basic facts can either be seen to follow from it or be describable in terms of it.

Example

Chemical theory, with its definitions of the elements in terms of the periodic table, specifying the structure of atoms, and defining various types of reactions that can take place between elements, is a theory fitting the above definition. Examples of some basic facts which either follow from chemical theory itself or are describable in terms of it are: iron rusts in water; salt dissolves in water; nothing can burn if completely immersed in water; lead is heavier than aluminium; neither aluminium nor lead float in water. Chemical theory, by defining the elements iron, lead, etc., and the reactions commonly known as rusting, burning, dissolving, etc., in terms of atomic structure, makes sense of what would otherwise simply be an unstructured list of apparently unrelated facts.

In the practice section below we illustrate some particular basic facts

about meaning, the kind of facts that a complete semantic theory must make sense of.

Practice

Mark each of the following statements true (*T*) or false (*F*).

(1) *Alive* means the opposite of *dead.* T / F
(2) *Buy* has an opposite meaning from *sell.* T / F
(3) *Caesar is and* is not a meaningful English sentence. T / F
(4) *Caesar is a prime number* is nonsensical. T / F
(5) *Caesar is a man* is nonsensical. T / F
(6) *Both of John's parents are married to aunts of mine* is in a sense contradictory, describing an impossible situation. T / F
(7) If the sentence *John killed Bill* is true of any situation, then so is the sentence *Bill is alive.* T / F
(8) If someone says, "Can you pass the salt?", he is normally not asking about his hearer's ability to pass the salt, but requesting the hearer to pass the salt. T / F
(9) If someone says, "I tried to buy some rice", his hearer would normally infer that he had actually failed to buy rice. T / F

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Feedback

(1) T (2) T (3) T (4) T (5) F (6) T (7) F (8) T (9) T

Comment

Each of the true statements here (and the negation of the false ones) is a statement of some particular basic fact falling within the scope of semantics. (We take a rather broad view of the scope of semantics, incidentally.) Obviously, one could not expect chemical theory, for example, to illuminate any of these facts. Chemical theory deals with chemical facts, such as the fact that iron rusts in water. Semantic theory deals with semantic facts, facts about meaning, such as those stated in the true statements above.

In aiming to discover some system and pattern in an assortment of particular facts about the meanings of individual words, sentences, and utterances, it is obviously necessary to try to move from particular facts, such as those mentioned above, to generalizations, i.e. statements about whole classes of items.

Practice

Think carefully about each of the following general statements, and try to say whether it is true (*T*) or false (*F*).

(1) Proper names (like English *John* or German *Hans* or French *Jean*) have a different kind of meaning from common nouns (like English *man*, or German *Mann* or French *homme*). T / F
(2) Prepositions (like English *under*, or German *unter*, or French *sous*) have a different kind of meaning from both proper names and common nouns. T / F

(3) Conjunctions (like English *and* or German *und*, or French *et*) have yet a further kind of meaning from both proper names and common nouns, and prepositions. *T / F*

(4) Articles (e.g. English *the*, German *der*, or French *le*) have a different kind of meaning from proper names, common nouns, prepositions, and conjunctions. *T / F*

Feedback (1) T (2) T (3) T (4) T

Comment The statements just considered are general in several ways. Firstly, they deal with whole classes of words, e.g. the whole class of prepositions, and not just with the individual examples actually mentioned. Secondly, they apply not just to English, but to human languages in general – to Arabic and Russian no less than to German and French.

We take up this point about semantic theory being applicable to all languages below. Notice that many of the particular basic facts about meaning in English mentioned in the last practice but one have clear counterparts in other languages, e.g. German and French.

Practice This practice assumes a knowledge of French and German: do as much as you can. Mark each of the following statements true (*T*) or false (*F*).

(1) In German, *lebendig* means the opposite of *tot.* *T / F*

(2) In French, *acheter* has an opposite meaning from *vendre.* *T / F*

(3) *César est et* is not a meaningful French sentence. *T / F*

(4) In German, *Caesar ist Primzahl* is nonsensical. *T / F*

(5) In French, *Et la mère et le père de Jean sont mariés à mes tantes* is in a sense contradictory, describing an impossible situation. *T / F*

(6) In German, if the sentence *Hans hat Willi getötet* is true of any situation, then so is the sentence *Willi ist tot.* *T / F*

(7) If a German speaker says, "Können Sie mir das Salz reichen?", he is normally not asking about his hearer's ability to pass the salt, but requesting the hearer to pass the salt. *T / F*

(8) If a French speaker says, "J'ai essayé d'acheter du riz", his hearer would normally infer that he had failed to buy rice. *T / F*

Feedback (1)–(8) T

Comment Many basic facts about English have exact parallels in other languages. The examples above illustrate some such parallels between English and German and French. Very pervasive similarities, such as these, between languages encourage semanticists to believe that it is possible to make

some very general statements about all languages, especially about the most fundamental and central areas of meaning. The fact that it is possible to translate any sentence of one language (at least roughly) into any other language (however clumsily) also reinforces the conclusion that the basic facts about meaning in all languages are, by and large, parallel. This is not to deny, of course, that there are interesting differences between languages.

Practice

(1) Is there an exact equivalent in French for the English word *parent*? *Yes / No*

(2) Can the English phrase *aunts of mine* (as in *married to aunts of mine*) be straightforwardly translated into French? *Yes / No*

(3) Explain the difference between the two German sentences *Können Sie mir das Salz reichen?* and *Kannst Du mir das Salz reichen?*

---

(4) Can a similar nuance of meaning be straightforwardly conveyed in English? *Yes / No*

Feedback

(1) No, French *parent* means something broader, translatable by English *relative* or *kinsman*. (2) No, *mes tantes* and *plusieurs de mes tantes* do not quite translate the English *aunts of mine* exactly. (3) A speaker of the first sentence would be on less intimate terms with his hearer than a speaker of the second sentence. (4) No

Comment

If we were to consider languages less closely related to English than French and German, such as Eskimo, or an Australian aborigine language, or Navaho, we would find many more such examples of differences between languages. But interesting as such differences may be as 'collector's items', semantics concentrates on the similarities between languages, rather than on the differences. Semantic theory is a part of a larger enterprise, linguistic theory, which includes the study of syntax (grammar) and phonetics (pronunciation) besides the study of meaning. It is a characteristic of Linguistics as a whole that it concentrates on the similarities between languages.

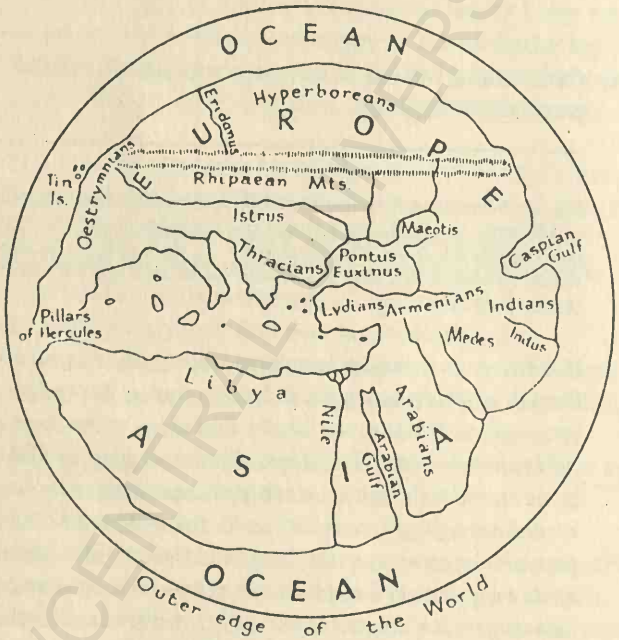
It is not possible to talk precisely and simply about meaning without using at least a small amount of the technical terminology developed by semanticists for just this purpose. Working through this book, you should learn to use some of these technical terms, and you should find, as you progress, that you get better at making precise statements about various aspects of meaning. Fortunately, the technical terminology of semantics, especially at this elementary level, is nowhere near as pervasive and difficult as the technical vocabulary of many scientific

subjects, such as chemistry, biology, and mathematics. We try to avoid unnecessary jargon, and only introduce a technical term when no everyday word quite suits our purpose.

No theory, be it chemical theory, phonetic theory, mathematical theory, semantic theory, or whatever, is complete. That is, no matter how many facts a theory actually succeeds in explaining or predicting, there are always further facts in need of explanation, other facts about which the theory as yet makes no prediction (or possibly about which it makes a false prediction), and facts which do not seem to be readily describable in the terms provided by the theory. Human knowledge grows cumulatively (with occasional drastic leaps and revolutions).

Practice

Look at Hecataeus' map of the world below (after *Grosser historischer Weltatlas*, ed. H. Bengston, 1972), originally drawn about 520 B.C.; then answer the questions.



(1) Is there enough similarity between this map and a modern map to conclude that they are both attempts to represent the same thing? *Yes / No*

(2) In what areas would a modern map coincide most closely with this?

_____

(3) In what areas would a modern map diverge most from this?

_____

(4) Does it seem reasonable to assume that a modern map is generally a better representation of the actual geographical facts? *Yes / No*

(5) Is it conceivable that a modern map could be wrong in some respects? *Yes / No*

(6) How must the correctness of a map ultimately be checked?

---

(7) Are climatic conditions or geological facts represented on a typical modern map? *Yes / No*

(8) Are there new techniques, invented outside the immediate domain of the map-maker, available to the modern mapmaker, but unavailable to the ancient mapmaker? *Yes / No*

(9) Have the actual geographical facts changed in any way since 520 B.C.? *Yes / No*

Feedback

(1) Yes (2) in the central areas, around the shores of the Eastern Mediterranean (3) in the peripheral areas, West Africa, Africa south of the Sahara, Northern Europe, the Far East, and the New World (4) We have no alternative but to assume that our modern account of the facts is more likely to be correct than the ancient one. (5) Yes (6) by comparing it with factual data gathered from the site of the map itself (7) No, these dimensions are usually absent, so even a modern map is far from representing 'all the facts'. (8) Yes, for instance, aerial photography, photographs from satellites, etc. (9) Very slightly – the odd river might have changed its course, and man-made objects, e.g. cities and canals, have appeared and disappeared.

Comment

The analogy between the development of semantics and the development of other areas of knowledge can be pressed quite far. Aristotle can be regarded as a forerunner of modern semantics, just as Hecataeus was a forerunner of modern geography. Aristotle was clearly concerned with the same general areas that concern modern semanticists. There are areas of meaning studied by modern semanticists which were *terra incognita* to Aristotle. We must assume that our modern theories of meaning (to the extent that they agree with one another) are in some sense superior to Aristotle's, i.e. that in some ways Aristotle 'got it wrong', and we, with the benefit of more than 2,000 years' further thought, are more likely to have 'got it right'. Semantic theories are justified by reference to the actual semantic facts that they are meant to account for. As the subject has developed, new dimensions in the nature of meaning have begun to be described. And today's semanticists have at their disposal certain modern techniques (e.g. symbolic logic, generative grammar) not available to the ancients. As far as we can tell, although individual languages have changed (Modern Greek is very different from Ancient Greek), the basic ways in which language is used to convey meaning have not changed at all.

An analogy should not be pushed too far. Obviously there are also differences between semantics and a physical science, like geography.

It will be seen that the semanticist has certain advantages and certain disadvantages in comparison to students of other subjects. He is spared the physical labour and inconvenience of experiments or expeditions to ascertain facts – he can do semantics from his armchair. (Of course he will need paper and pencil to formulate his theories, and he will need to go to the library to compare his ideas with those of other semanticists, but these are minimal efforts.) Correspondingly, however, the mental labour, as with any theoretical discipline, can be quite arduous. The semanticist needs to be able to think in abstractions. Doing semantics is largely a matter of conceptual analysis, exploring the nature of meaning in a careful and thoughtful way, using a wide range of examples, many of which we can draw from our own knowledge.

One thing we would recommend, as you proceed through this book, is that you take a positively critical attitude to the ideas being put forward. If you disagree with the 'feedback' to some exercises, try to work out why, and discuss the problem with your tutors and fellow students. Semantics is not cut-and-dried in its final state. You can contribute to its development by active discussion of the ideas in this book, many of which may be as imperfect as Hecataeus' map.

Bon voyage!

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UNIT 2
SENTENCES, UTTERANCES AND PROPOSITIONS

Introduction This unit introduces some basic notions in semantics. It is important that you master these notions from the outset as they will keep recurring throughout the course.

Instruction Read the following out loud:

Virtue is its own reward

Now read it out loud again.

Comment The same sentence was involved in the two readings, but you made two different utterances, i.e. two unique physical events took place.

Definition An UTTERANCE is any stretch of talk, by one person, before and after which there is silence on the part of that person.

An utterance is the USE by a particular speaker, on a particular occasion, of a piece of language, such as a sequence of sentences, or a single phrase, or even a single word.

Practice Now decide whether the following could represent utterances. Indicate your answer by circling *Yes* or *No*.

(1) "Hello" *Yes / No*

(2) "Not much" *Yes / No*

(3) "Utterances may consist of a single word, a single phrase or a single sentence. They may also consist of a sequence of sentences. It is not unusual to find utterances that consist of one or more grammatically incomplete sentence-fragments. In short, there is no simple relation of correspondence between utterances and sentences" *Yes / No*

(4) "Pxgotmgt" *Yes / No*

(5) "Schplotzenpflaaaaaaargh!" *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes, even though it would be a bit of a mouthful to say in one utterance (i.e. without pauses). (4) No, this string of sounds is not from any language. (5) No, for the same reason

Comment Utterances are physical events. Events are ephemeral. Utterances die on the wind. Linguistics deals with spoken language and we will have a lot

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to say about utterances in this book. But we will concentrate even more on another notion, that of sentences.

Definition (partial)

A SENTENCE is neither a physical event nor a physical object. It is, conceived abstractly, a string of words put together by the grammatical rules of a language. A sentence can be thought of as the IDEAL string of words behind various realizations in utterances and inscriptions.

Practice

Some examples will help to get the idea of a sentence across. Indicate your answer by circling *Yes* or *No*.

(1) Do all (authentic) performances of 'Macbeth' begin by using the same sentence? *Yes / No*
(2) Do all (authentic) performances of 'Macbeth' begin with the same utterance? *Yes / No*
(3) Does it make sense to talk of the time and place of a sentence? *Yes / No*
(4) Does it make sense to talk of the time and place of an utterance? *Yes / No*
(5) Can one talk of a loud sentence? *Yes / No*
(6) Can one talk of a slow utterance? *Yes / No*

Feedback

(1) Yes (2) No (3) No (4) Yes (5) No (6) Yes

Comment

Strictly, a book such as this contains no utterances (since books don't talk) or sentences (since sentences are abstract ideals). In semantics we need to make a careful distinction between utterances and sentences. In particular we need some way of making it clear when we are discussing sentences and when utterances. We adopt the convention that anything written between double quotation marks represents an utterance, and anything italicized represents a sentence or (similarly abstract) part of a sentence, such as a phrase or a word.

Example

"Help" represents an utterance.
The postillions have been struck by lightning represents a sentence.
"The postillions have been struck by lightning" represents an utterance.
John represents a word conceived as part of a sentence.

Practice

(1) For each of the following label it as an utterance (*U*) or sentence (*S*), as appropriate, by circling your choice.
  (a) "The train now arriving at platform one is the 11.15 from King's Cross" *U / S*
  (b) *The pelican ignores the linguist* *U / S*
(2) Given our conventions, say what is wrong with the following:

(a) John announced *Mary's here* in his squeakiest voice

In quotation marks since it is [illegible] the event of his using those words on a particular

(b) "Mary thought *how nice John was*"

[illegible] that cannot be part of an utterance [illegible] not italicized

---

Feedback

(1) (a) U (b) S (2) (a) "Mary's here" should be in quotation marks since it represents John's utterance, i.e. the event of his using those words on a particular occasion. (b) A sentence, which is not a physical thing, cannot be part of an utterance, which is a physical event. "How nice John was" should not be italicized. (Alternatively the whole example should be italicized and the quotation marks removed.)

Rule

We have defined a sentence as a string of words. A given sentence always consists of the same words, and in the same order. Any change in the words, or in their order, makes a different sentence, for our purposes.

Example

Helen rolled up the carpet
Helen rolled the carpet up } different sentences

Sincerity may frighten the boy
Sincerity may frighten the boy } the same sentence

Comment

It would make sense to say that an utterance was in a particular accent (i.e. a particular way of pronouncing words). However, it would not make strict sense to say that a sentence was in a particular accent, because a sentence itself is only associated with phonetic characteristics such as accent and voice quality through a speaker's act of uttering it. Accent and voice quality belong strictly to the utterance, not to the sentence uttered.

You may utter a [illegible] but you cannot [illegible] sentence as utterance

Practice

(1) Does it make sense to ask what language (e.g. English, French, Chinese) a sentence belongs to? *Yes / No*

(2) What languages do the following sentences belong to?
Le jour de gloire est arrivé.

Alle Menschen sprechen eine Sprache.

Feedback (1) Yes (2) French, German

Comment Not all utterances are actually tokens of sentences, but sometimes only of parts of sentences, e.g. phrases or single words.

Definition (partial) A SENTENCE is a grammatically complete string of words expressing a complete thought.

Comment This very traditional definition is unfortunately vague, but it is hard to arrive at a better one for our purposes. It is intended to exclude any string of words that does not have a verb in it, as well as other strings. The idea is best shown by examples.

Example

I would like a cup of coffee is a sentence.

Coffee, please is not a sentence.

In the kitchen is not a sentence.

Please put it in the kitchen is a sentence.

Practice Which of the following utterances are tokens of whole sentences (*S*) and which are not (*NS*)?

(1) "John" *S / NS*
(2) "Who is there?" *S / NS*
(3) "Mine" *S / NS*
(4) "It's mine" *S / NS*
(5) "Where shall I . . . ?" *S / NS*

Feedback (1) NS (2) S (3) NS (4) S (5) NS

Comment Utterances of non-sentences, e.g. short phrases, or single words, are used by people in communication all the time. People do not converse wholly in (tokens of) wellformed sentences. But the abstract idea of a sentence is the basis for understanding even those expressions which are not sentences. In the overwhelming majority of cases, the meanings of non-sentences can best be analysed by considering them to be abbreviations, or incomplete versions, of whole sentences.

Practice Given below are some sample conversations. In each case the second utterance is not a token of a sentence. Write out a full sentence expressing the intended meaning more fully.

(1) Magnus: "When did Goethe die?"

Fred: "In 1832" _____

(2) Hostess: "Would you like tea or coffee?"

Guest: "Coffee, please" _____

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(3) A: "Who won the battle of Waterloo?"

B: "Wellington" _____

Feedback (1) Goethe died in 1832 (2) I would like coffee please (3) Wellington won the battle of Waterloo

Comment Semantics is concerned with the meanings of non-sentences, such as phrases and incomplete sentences, just as much as with whole sentences. But it is more convenient to begin our analysis with the case of whole sentences. The meanings of whole sentences involve propositions; the notion of a proposition is central to semantics. What exactly a proposition is, is much debated by semanticists. We shall be content with a very simple definition.

Definition A PROPOSITION is that part of the meaning of the utterance of a declarative sentence which describes some state of affairs.

Comment The state of affairs typically involves persons or things referred to by expressions in the sentence. In uttering a declarative sentence a speaker typically asserts a proposition.

Rule The notion of truth can be used to decide whether two sentences express different propositions. Thus if there is any conceivable set of circumstances in which one sentence is true, while the other is false, we can be sure that they express different propositions.

Practice Consider the following pairs of sentences. In each case, say whether there are any circumstances of which one member of the pair could be true and the other false (assuming in each case that the same name, e.g. *Harry*, refers to the same person).

(1) *Harry took out the garbage*
Harry took the garbage out *Yes / No*

(2) *John gave Mary a book*
Mary was given a book by John *Yes / No*

(3) *Isobel loves Tony*
Tony loves Isobel *Yes / No*

(4) *George danced with Ethel*
George didn't dance with Ethel *Yes / No*

(5) *Dr Findlay killed Janet*
Dr Findlay caused Janet to die *Yes / No*

Feedback (1) No, these are always either both true or both false. We cannot imagine any situation in which one is true and the other false. (2) No (3) Yes, one could

be true and the other false. (4) Yes (5) Yes, for example in the situation where Dr Findlay had caused Janet to die, but not intentionally, say by sending her to a place where, unknown to him, she was attacked. Someone else could in fact be guilty of killing her.

Comment True propositions correspond to facts, in the ordinary sense of the word *fact*. False propositions do not correspond to facts.

Practice

In the present-day world,

(1) Is it a fact that there are lions in Africa? *Yes / No*

(2) Is the proposition that there are lions in Africa a true proposition? *Yes / No*

(3) Is it a fact that the state of Arkansas is uninhabited by human beings? *Yes / No*

(4) Is the proposition that the state of Arkansas is uninhabited by human beings true? *Yes / No*

Feedback (1) Yes (2) Yes (3) No (4) No

Comment One can entertain propositions in the mind regardless of whether they are true or false, e.g. by thinking them, or believing them. But only true propositions can be known.

Practice

(1) If John wonders whether Alice is deceiving him, would it seem reasonable to say that he has the proposition that Alice is deceiving him in his mind, and is not sure whether it is a true or a false proposition? *Yes / No*

(2) If I say to you, "If Mary came to the party, Phyllis must have been upset", do I thereby put in your mind the proposition that Mary came to the party, without necessarily indicating whether it is true or not? *Yes / No*

(3) If I say to you, "Was your father in the Navy?", would it seem reasonable to say that I have the proposition that your father was in the Navy in my mind, and wish to know whether this proposition is true or not? *Yes / No*

(4) Is there something odd about the following sentence? If so, what?

Pamela considered the fact that her mother was alive and realized that it could not possibly be true.

---

(5) Is there something similarly odd about the following sentence? If so, what?

Pamela considered the proposition that her mother was alive and realized that it could not possibly be true.

Feedback (1) Yes (2) Yes (3) Yes (4) Yes, there is a kind of contradiction here, in that the same thing is said to be both 'a fact' and 'not possibly true'. (5) No, there is nothing odd about this sentence.

Comment In our definition of proposition we explicitly mentioned declarative sentences, but propositions are clearly involved in the meanings of other types of sentences, such as interrogatives and imperatives. Normally, when a speaker utters a simple declarative sentence, he commits himself to the truth of the corresponding proposition: i.e. he asserts the proposition. By uttering a simple interrogative or imperative, a speaker can mention a particular proposition, without asserting its truth.

Example In saying, "John can go" a speaker asserts the proposition that John can go. In saying, "Can John go?", he mentions the same proposition but merely questions its truth. We say that corresponding declaratives and interrogatives (and imperatives) have the same propositional content.

Practice

(1) In the following utterances, is any proposition asserted by the speaker?

(a) "Have you seen my toothbrush?" *Yes / No*

(b) "Get out of here this minute!" *Yes / No*

(c) "I'm afraid that I'll have to ask you to leave" *Yes / No*

(2) Would you say that the members of the following sentence pairs have the same propositional content?

(a) *Go away, will you?*
You will go away *Yes / No*

(b) *Pigs might fly*
I'm a Dutchman *Yes / No*

(c) *I am an idiot*
Am I an idiot? *Yes / No*

Feedback (1) (a) No (b) No (c) Yes (2) (a) Yes (b) No common proposition is involved. (c) Yes

Comment The notion of propositional content will be taken up again in unit 25. Propositions, unlike sentences, cannot be said to belong to any particular language. Sentences in different languages can correspond to the

same proposition, if the two sentences are perfect translations of each other.

Example English *I am cold*, French *J'ai froid*, and German *Mir ist kalt* can, to the extent to which they are perfect translations of each other, be said to correspond to the same proposition.

Comment One may question whether perfect translation between languages is ever possible. We shall assume that in some, possibly very few, cases, perfect translation IS possible.

We shall have a lot to say in later units about utterances, sentences and propositions, since these concepts are at the bottom of all talk about meaning. We shall see that we have to be very careful, when talking about meaning, to make it clear whether we are dealing with utterances or sentences. To this end we shall try summarizing the relationship between these notions.

We shall use the terms 'proposition', 'sentence', and 'utterance' in such a way that anything that can be said of propositions can also be said of utterances, but not necessarily vice versa, and anything that can be said of sentences can also be said of utterances, but not necessarily vice versa. We have already seen an example of this when we said it was sensible to talk of a sentence being in a particular language, and also sensible to talk of an utterance being in a particular language, although one cannot talk of a proposition being in a particular language.

Practice (1) Fill in the chart below with '+' or '—' as appropriate. Thus, for example, if it makes sense to think of a proposition being in a particular regional accent, put a '+' in the appropriate box; if not put a '—'.

	Utterances	Sentences	Propositions
Can be loud or quiet			
Can be grammatical or not			
Can be true or false			
In a particular regional accent			
In a particular language			

(2) Can the same proposition be expressed by different sentences? *Yes / No*

(3) Can the same sentence be realized by different utterances (i.e. have different utterances as tokens)? *Yes / No*

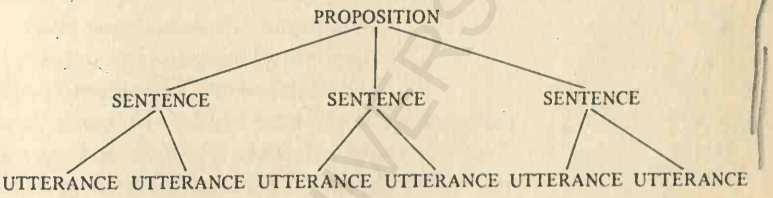
Feedback

(1) + — —
+ + —
+ + +
+ — —
+ + —

(2) Yes (3) Yes

Comment

It is useful to envisage the kind of family tree relationship between these notions shown in the diagram. For example, a single proposition



could be expressed by using several different sentences (say *The Monday Club deposed Mrs Thatcher*, or *Mrs Thatcher was deposed by The Monday Club*) and each of these sentences could be uttered an infinite number of times.

A proposition is an abstraction that can be grasped by the mind of an individual person. In this sense, a proposition is an object of thought. Do not equate propositions with thoughts, because thoughts are usually held to be private, personal, mental processes, whereas propositions are public in the sense that the same proposition is accessible to different persons: different individuals can grasp the same proposition. Furthermore a proposition is not a process, whereas a thought can be seen as a process going on in an individual's mind. Unfortunately, of course, the word *thought* may sometimes be used loosely in a way which includes the notion of a proposition. For instance, one may say, "The same thought came into both our heads at the same time." In this case, the word *thought* is being used in a sense quite like that of the word *proposition*. The relationship between mental processes (e.g. thoughts), abstract semantic entities (e.g. propositions), linguistic entities (e.g. sentences), and actions (e.g. utterances) is problematic and complicated.

Summary

These comments are impressionistic and simplified, but we believe that they will give a beginning student in semantics an idea of the kind of

motivation behind the semanticist's careful distinction between utterances, sentences, and propositions.

We have introduced a notational way of distinguishing between sentences (italic typeface) and utterances (double quotation marks). Note that we have as yet shown no way of representing propositions. One possible way will be shown in the units on logic.

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UNIT 3
REFERENCE AND SENSE

Entry requirements

SENTENCES, UTTERANCES, and PROPOSITIONS (Unit 2). If you feel you understand these notions, take the entry test below.

Entry test

Answer the following:

(1) State which of the following represents an utterance (*U*) and which a sentence (*S*):

John sang wonderfully last night — *S / U*

"John sang wonderfully last night" — *S / U*

(2) Can a sentence be true or false? — *Yes / No*

(3) Is an utterance tied to a particular time and place? — *Yes / No*

(4) Is a sentence tied to a particular time and place? — *Yes / No*

(5) Can a proposition be said to be in any particular language? — *Yes / No*

(6) Can an utterance be true or false? — *Yes / No*

Feedback

(1) S, U (2) Yes (3) Yes (4) No (5) No (6) Yes

If you have scored less than 5 correct out of 6, you should review Unit 2. If you have scored at least 5 correct out of 6, continue to the introduction.

Introduction

This unit explains some further basic notions in semantics. It is important that you master these notions from the outset as they will keep recurring throughout the course.

Comment

On this page and the following ones, you will learn the difference between two quite distinct ways of talking about the meaning of words and other expressions. In talking of sense, we deal with relationships inside the language; in talking of reference we deal with the relationships between language and the world.

Definition

By means of reference, a speaker indicates which things in the world (including persons) are being talked about.

Example

"My son is in the beech tree"

identifies person — identifies thing

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As a further example, the second and third words of the 'comment' paragraph above form the phrase *this page*. The phrase *this page* is a part of the English language. The phrase, when it was used in the 'comment' paragraph above, actually identified a particular sheet of paper, something that you could take between your finger and thumb, a little part of the world. The actual page, the sheet of paper, is not a part of the English language, since languages are not made of pieces of paper.

Comment

So we have two things: the English expression *this page* (part of the language) and the thing you could hold between your finger and thumb (part of the world). We call the relationship between them 'reference'. That is, in the previous 'comment' paragraph, *this page* refers to the physical sheet of paper numbered 25.

Practice

Before answering these questions you should carry out the following simple instruction:
touch your left ear.

(1) Write down the last three words in the above instruction.

your left ear

(2) Is the thing you touched a part of the world or a part of the language?

(3) Is your answer to (1) a part of the language? *Yes / No*

(4) If you say to your mother "There's a wasp on your left ear" does "your left ear" here refer to the thing you touched in response to a previous question? *Yes / No*

Feedback

(1) your left ear (2) A part of the world, languages do not have ears. (3) Yes (4) No, it refers to your mother's left ear.

Comment

In the present circumstances, *your left ear* refers to the thing you touched in response to (1) above. We say that your left ear is the referent of the phrase *your left ear*: reference is a relationship between parts of a language and things outside the language (in the world).

The same expression can, in some cases, be used to refer to different things. There are as many potential referents for the phrase *your left ear* as there are people in the world with left ears. Likewise there are as many potential referents for the phrase *this page* as there are pages in the world. Thus some (in fact very many) expressions in a language can have variable reference.

Practice

(1) What would be the referent of the phrase *the present Prime Minister* used in Britain:

(a) in 1982? _____

(b) in 1944? _____

(2) Therefore we can say that the phrase *the present Prime Minister* has

_____

(3) What would be the referent of the phrase *the Prime Minister* used in a conversation about:

(a) British politics in 1982? _____

(b) in 1944? _____

(4) In the light of the preceding questions, does the reference of an expression vary according to (a) the circumstances (time, place, etc.) in which the expression is used, or (b) the topic of the conversation in which the expression is used, or (c) both (a) and (b)? Circle your choice.

Feedback

(1) (a) Mrs Thatcher (b) Winston Churchill (2) variable reference (3) (a) Mrs Thatcher (b) Winston Churchill (4) (c)

Comment

There are cases of expressions which in normal everyday conversation never refer to different things, i.e. in most everyday situations that one can envisage, have constant reference.

Practice

Imagine two different everyday situations in which separate couples are having separate conversations about what they refer to with the phrase *the moon.*

(1) Would they be talking about the same object (i.e. does *the moon* normally have constant reference)? *Yes / No*

(2) Does *The People's Republic of China* normally have constant reference? *Yes / No*

(3) Does *Angola* normally have constant reference? *Yes / No*

(4) Does *Halley's Comet* normally have constant reference? *Yes / No*

Feedback

(1) Yes (2) Yes (3) Yes (4) Yes

Comment

In fact, there is very little constancy of reference in language. In everyday discourse almost all of the fixing of reference comes from the context in which expressions are used. Two different expressions can have the same referent. The classic example is *the Morning Star* and *the Evening Star*, both of which normally refer to the planet Venus.

Practice

(1) In a conversation about Britain in 1982 can *the Prime Minister* and *the Leader of the Conservative Party* have the same referent? *Yes / No*

(2) If we are talking about a situation in which John is standing alone in the corner, can *John* have the same referent as *the person in the corner*? *Yes / No*

Feedback

(1) Yes (2) Yes

Definition

To turn from reference to sense, the SENSE of an expression is its place in a system of semantic relationships with other expressions in the language. The first of these semantic relationships that we will mention is sameness of meaning, an intuitive concept which we will illustrate by example. We will deal first with the senses of words in context.

Practice

Say whether the pairs of words in the curly brackets in the sentences below have the same meaning (*S*) or a different meaning (*D*).

(1) *I* { *almost* / *nearly* } *fell over* *S / D*

(2) *It is* { *likely* / *probable* } *that Raymond will be here tomorrow* *S / D*

(3) *Your gatepost doesn't seem to be quite* { *vertical* / *upright* } *S / D*

(4) *He painted the fireplace* { *aquamarine* / *vermilion* } *S / D*

(5) *I'll see you on* { *Wednesday* / *Thursday* } *S / D*

Feedback

(1) S (2) S (3) S (4) D (5) D

Comment

We can talk about the sense, not only of words, but also of longer expressions such as phrases and sentences.

Practice

Intuitively, do the following pairs mean the same thing?

(1) *Rupert took off his jacket*
Rupert took his jacket off *Yes / No*

(2) *Harriet wrote the answer down*
Harriet wrote down the answer *Yes / No*

(3) *Bachelors prefer redheads*
Girls with red hair are preferred by unmarried men *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes (You may not have agreed, but it's not too important, as we are dealing with a quite rough-and-ready concept at this stage. Try to see the ways our answers fit the questions.)

Comment In some cases, the same word can have more than one sense.

Practice Does the word *bank* have the same meaning in the following sentence pairs?

(1) *I have an account at the Bank of Scotland*
We steered the raft to the other bank of the river *Yes / No*

(2) *The DC-10 banked sharply to avoid a crash*
I banked the furnace up with coke last night *Yes / No*

Feedback (1) No (2) No, we say that *bank* has a number of different senses (at least 4).

Comment We use the term 'word' here in the sense of 'word-form'. That is, we find it convenient to treat anything spelled with the same sequence of letters and pronounced with the same sequence of phonemes in a standard dialect as being the same word. Thus, for example, we treat *bank* in the practice above as a single word with many senses. This is the way most non-semanticists use the term 'word'. We mention this because some semanticists, including almost all compilers of dictionaries, would regard *bank*, for example, as several different words. In an ordinary dictionary there are several different entries for the word *bank*, sometimes distinguished by a subscript, e.g. $bank_1$, $bank_2$, etc. No confusion will arise from our relatively non-technical use of the term 'word'. This matter will be taken up again in a later unit, when we discuss HOMONYMY and POLYSEMY (Unit 11).

One sentence can have different senses too, as the following practice section illustrates.

Practice (1) Write down two sentences bringing out clearly the two different meanings of *The chicken is ready to eat.*

---

(2) Write down two sentences bringing out clearly the two different senses of *He greeted the girl with a smile.*

The girl had a smile on her face

He had a smile

---

(3) Do likewise for *He turned over the field.*

_____

_____

Feedback

(1) The chicken is ready to be eaten vs. The chicken is ready to eat something
(2) Smiling, he greeted the girl vs. He greeted the smiling girl (3) He changed direction over the field vs. He turned the field over (where *he* = an airplane pilot or *he* = a ploughman)

Comment

On the relationship between sense and reference: the referent of an expression is often a thing or a person in the world; whereas the sense of an expression is not a thing at all. In fact, it is difficult to say what sort of entity the sense of an expression is. It is much easier to say whether or not two expressions have the same sense. (Like being able to say that two people are in the same place without being able to say where they are.) The sense of an expression is an abstraction, but it is helpful to note that it is an abstraction that can be entertained in the mind of a language user. When a person understands fully what is said to him, it is reasonable to say that he grasps the sense of the expressions he hears.

Rule

Every expression that has meaning has sense, but not every expression has reference.

Practice

Do the following words refer to things in the world?

(1) *almost* *Yes / No* (3) *and* *Yes / No*
(2) *probable* *Yes / No* (4) *if* *Yes / No*

Feedback

None of the above words refers to a thing in the world. Nevertheless all these words, *almost*, *probable*, *and*, and *if* have some sense.

Practice

(1) When you look up the meaning of a word in a dictionary, what do you find there, its referent, or an expression with the same sense?

_____

(2) Is a dictionary full of words or full of things, like a box or a sack?

_____

(3) Could a foreigner learn the meanings of his very first words of English by having their typical referents pointed out to him? *Yes / No*

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(4) Could a foreigner learn the meanings of his very first words of English by looking them up in an English dictionary? *Yes / No*

Feedback (1) an expression with the same sense (2) full of words (3) Yes (4) No

Comment There is something essentially circular about the set of definitions in a dictionary. Similarly, defining the senses of words and other expressions often has something of this circular nature. This is not necessarily a bad thing, and in any case it is often unavoidable, since in many cases (e.g. cases of expressions that have no referents: *and*, etc.) there is no way of indicating the meaning of an expression except with other words.

Just as there is something grammatically complete about a whole sentence, as opposed to a smaller expression such as a phrase or a single word, there is something semantically complete about a proposition, as opposed to the sense of a phrase or single word. One might say, roughly, that a proposition corresponds to a complete independent thought.

Practice Are the senses of the following expressions propositions?

(1) *Johnny has got a new master* *Yes / No*

(2) *A new master* (not understood as an elliptical sentence-fragment) *Yes / No*

(3) *Johnny* (not understood as an elliptical sentence-fragment) *Yes / No*

(4) *This is the house that Jack built* *Yes / No*

Feedback (1) Yes (2) No (3) No (4) Yes

Comment To the extent that perfect translation between languages is possible (and this is a very debatable point), the same sense can be said to belong to expressions in different languages.

Practice

(1) Do *M. Berger s'est rasé ce matin* and *M. Berger shaved himself this morning* express the same proposition? *Yes / No*

(2) Do the two sentences in (1) have the same sense? *Yes / No*

(3) Do the expressions *ce matin* and *this morning* have the same sense? *Yes / No*

(4) Do the expressions *s'est rasé* and *shaved himself* have the same sense? *Yes / No*

(5) Does *ein unverheirateter Mann* have the same sense as *an unmarried man*? *Yes / No*

Feedback (1) Yes, perhaps. One might well object, however, that *s'est rasé* is not a perfect translation of *shaved*, since it could also be rendered as *has shaved*. (2) Yes, with the same reservations as for question (1) (3) Yes (4) Perhaps (5) Yes

Comment Just as one can talk of the same sense in different languages, so one can talk of expressions in different dialects of one language as having the same sense.

Practice

(1) Do *pavement* in British English and *sidewalk* in American English have the same sense? *Yes / No*

(2) Do *pal* and *chum* have the same sense? *Yes / No*

(3) Can expressions with entirely different social connotations have the same sense? For example, can the following have the same sense?
People walking in close spatio-temporal proximity
People walking near each other *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes

Comment The relationship between reference and utterance is not so direct as that between sense and proposition, but there is a similarity worth pointing out. Both referring and uttering are acts performed by particular speakers on particular occasions.

Practice Imagine that a friend of yours says to you, "John is putting on weight these days", and imagine that a friend of ours (i.e. the authors of this book) happens to utter the same sentence to us one day.

(1) Would this be a case of one utterance or two?

---

(2) Would the John referred to be the same John or two different Johns?

Feedback (1) two (2) almost certainly, two different Johns.

Comment In the two separate utterances above, there are two separate acts of referring. In fact, most utterances contain, or are accompanied by, one or more acts of referring. An act of referring is the picking out of a particular referent by a speaker in the course of a particular utterance.

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Although the concept of reference is fundamentally related to utterances, in that acts of reference only actually happen in the course of utterances, we will find it useful to stretch a point and talk about reference in connection with sentences, or parts of sentences. What we are really doing in cases like this is imagining a potential utterance of the sentence or expression in question.

In everyday conversation the words *meaning*, *means*, *mean*, *meant*, etc. are sometimes used to indicate reference and sometimes to indicate sense.

Practice

What is intended by the word *mean*, *meaning*, etc. in the following examples, reference (*R*) or sense (*S*)?

(1) When Helen mentioned "the fruit cake", she meant that rock-hard object in the middle of the table. *R / S*
(2) When Albert talks about "his former friend" he means me. *R / S*
(3) Daddy, what does *unique* mean? *R / S*
(4) *Purchase* has the same meaning as *buy*. *R / S*
(5) Look up the meaning of *apoplexy* in your dictionary. *R / S*
(6) If you look out of the window now, you'll see who I mean. *R / S*

Feedback

(1) R (2) R (3) S (4) S (5) S (6) R

Comment

The study of sense demands, as you may have noticed, a degree of idealization of the facts about meaning. In other words, sometimes we claim to be more certain than we perhaps should be about questions like 'Does this expression have the same sense as that one?' It is worth going along with this idealization. We will not let it lead us astray unduly. In later units we will deal with some problems with the notion of sense.

Summary

The notions of sense and reference are central to the study of meaning. Every further unit in this book will make use of one or another of these notions. The idea of reference is relatively solid and easy to understand. The idea of sense is more elusive: it's a bit like electricity, which we all know how to use (and even talk about) in various ways, without ever being sure what exactly it is. Even semanticists aren't sure exactly what sense is, but you'll find that your grasp of it and your appreciation of the usefulness of the concept will grow as you study more. (The importance of the sense/reference distinction was most influentially demonstrated by the German philosopher Gottlob Frege.)

2 From reference...

UNIT 4
REFERRING EXPRESSIONS

Entry requirements

REFERENCE and SENSE (Unit 3). If you feel you understand these notions, take the entry test below. If not, review Unit 3 before continuing.

Entry test

Answer the following questions:

(1) Give an example of an expression that might be used to refer to the Prime Minister of Great Britain in 1982.

_____

(2) Give an example of an expression that could have variable reference.

_____

(3) Give an example of an expression that always (in normal everyday conversation) has constant reference.

_____

(4) Give an example of different expressions having one referent.

_____

(5) Give an example of an expression that has no reference.

_____

(6) Which of the following is a correct description of 'reference'? Circle your choice.

(a) a relationship between expressions and other expressions which have the same meaning

(b) the set of all objects which can potentially be referred to by an expression

(c) a relationship between a particular object in the world and an expression used in an utterance to pick that object out

Feedback

(1) *Mrs Thatcher*, *The Iron Lady*, etc. (2) *my car*, *this page*, etc. (3) *England*, *the sun*, etc. (4) *the Morning Star* and *the Evening Star*, etc. (5) *and*, *if*, etc. (6) (c)

If you got at least 5 out of 6 correct, continue to the introduction. Otherwise, review Unit 3 before proceeding.

Introduction

In this unit we develop the notion of reference (introduced in Unit 3), and consider more closely the range of expressions that speakers may use to refer to some object or person in the world. We will see that some expressions can only be used as referring expressions, some never can, and some expressions can be used to refer or not, depending on the kind of sentence they occur in. We introduce a notion (equative sentence) that is closely bound up with the idea of referring expressions.

Definition

A REFERRING EXPRESSION is any expression used in an utterance to refer to something or someone (or a clearly delimited collection of things or people), i.e. used with a particular referent in mind.

Example

The name *Fred* in an utterance such as "Fred hit me", where the speaker has a particular person in mind when he says "Fred", is a referring expression.

Fred in "There's no Fred at this address" is not a referring expression, because in this case a speaker would not have a particular person in mind in uttering the word.

Practice

Could the following possibly be used as referring expressions? Circle the answer of your choice.

(1) *John*	*Yes / No*	(5) *a man*	*Yes / No*
(2) *My uncle*	*Yes / No*	(6) *my parents*	*Yes / No*
(3) *and*	*Yes / No*	(7) *send*	*Yes / No*
(4) *the girl sitting on the wall by the bus stop*	*Yes / No*	(8) *under*	*Yes / No*

Feedback

(1) Yes (2) Yes (3) No (4) Yes (5) Yes, as in "A man was in here looking for you" (6) Yes (*My parents* refers to a pair of things. For convenience at this point we use the idea of reference to include clearly delimited collections of things.) (7) No (8) No

Comment

The same expression can be a referring expression or not (or as some would put it, may or may not have a 'referring interpretation'), depending on the context. This is true of indefinite noun phrases.

Practice

(1) When a speaker says, "A man was in here looking for you last night" is *a man* being used to refer to a particular man? *Yes / No*

(2) So, in the above example, is *a man* a referring expression? *Yes / No*

(3) When a speaker says, "The first sign of the monsoon is a cloud on the horizon no bigger than a man's hand", is *a man* being used to refer to a particular man? *Yes / No*

(4) Is *a man* in this example a referring expression? *Yes / No*
(5) Is *forty buses*, used in "Forty buses have been withdrawn from service by the Liverpool Corporation", a referring expression? *Yes / No*
(6) Is *forty buses*, used in "This engine has the power of forty buses", a referring expression? *Yes / No*

Feedback (1) Yes (2) Yes (3) No (4) No (5) Yes, assuming that the speaker has 40 specific buses in mind (6) No

Comment In the above examples the linguistic context often gave a vital clue as to whether the indefinite noun phrase was a referring expression or not. But it does not always give a clear indication.

Practice Are the following referring expressions? (Imagine normal circumstances for the utterance.)

(1) *a Norwegian*, used in "Nancy married a Norwegian" *Yes / No*
(2) *a Norwegian*, used in "Nancy wants to marry a Norwegian" *Yes / No*
(3) *a car*, used in "John is looking for a car" *Yes / No*
(4) *a man with a limp*, used in "Dick believes that a man with a limp killed Bo Peep" *Yes / No*
(5) *a man with a limp*, used in "A man with a limp killed Bo Peep" *Yes / No*
(6) *a swan*, used in "Every evening at sunset a swan flew over the house" *Yes / No*

Feedback (1) Yes (2) Yes and No: the sentence is ambiguous. It depends on whether the speaker has in mind a particular person whom Nancy wants to marry. (3) Yes and No: the sentence is ambiguous. It depends on whether the speaker has a particular car in mind. (4) Yes and No (5) Yes, it can be. (6) Yes and No

Comment All of the ambiguities in the above examples could in fact be resolved by the use of the word *certain* immediately following the indefinite article *a*, as in, for example: "Nancy wants to marry a certain Norwegian" or "John is looking for a certain car".

All of the above examples involve indefinite noun phrases. It is clear that, given our definitions, which allude to what is in the mind of the speaker on a particular occasion of utterance, indefinite noun phrases can be referring expressions. Other definitions could yield different results. What the above examples show is that, in our terms, whether an expression is a referring expression is heavily dependent on linguistic context and on circumstances of utterance.

We turn now to the case of definite noun phrases.

Practice

Are the following referring expressions? (Imagine normal circumstances for the utterances.)

(1) *John* in "John is my best friend" *Yes / No*

(2) *he* in "He's a very polite man", said by a husband to his wife in a conversation about their bank manager *Yes / No*

(3) *it* in "It's sinking!" used in a conversation about a battleship which has just been attacked *Yes / No*

(4) *the man who shot Abraham Lincoln* in "The man who shot Abraham Lincoln was an unemployed actor" *Yes / No*

Feedback

(1) Yes (2) Yes (3) Yes (4) Yes

Comment

These straightforward examples show how definite noun phrases of various kinds, proper names (e.g. *John*), personal pronouns (e.g. *he*, *it*), and longer descriptive expressions (as in question (4)) can all be used as referring expressions. Indeed, definite noun phrases such as these most frequently are used as referring expressions. But, even with definite noun phrases, there are examples in which they are not (or not clearly) referring expressions.

Practice

Are the following expressions referring expressions?

(1) *he* in "If anyone ever marries Nancy, he's in for a bad time" (meaning that whoever marries Nancy is in for a bad time) *Yes / No*

(2) *it* in "Every man who owns a donkey beats it" *Yes / No*

(3) *the person who did this* in "The person who did this must be insane", spoken by someone on discovering a brutally mutilated corpse, where the speaker has no idea who committed the crime *Yes / No*

(4) *Smith's murderer* in "Smith's murderer must be insane" uttered in circumstances like the above, where the corpse is Smith's *Yes / No*

Feedback

(1) No, the speaker has no particular individual in mind as Nancy's possible future husband. (2) No, *it* doesn't refer to any particular donkey here. (3) Not such a clear case, but it could be argued that *the person who did this* is not a referring expression in this example. (4) Similarly, an unclear case, but again it could be argued that *Smith's murderer* is not a referring expression here.

Comment

Such examples show that the notion 'referring expression' is not always easy to apply. Part of the difficulty encountered in the last two examples stems from the fact that it is not clear what we mean when we say that a speaker must have a particular individual in mind in order

to refer. We shall not try to resolve this issue here. But note that in the case of definite noun phrases also, the question of whether they are used as referring expressions is very much dependent on the context and circumstances of use.

We now move to a different topic, starting with consideration of definite noun phrases, but linking eventually with some of the previous examples involving indefinite noun phrases.

Practice

(1) Would the phrase *the Prime Minister* used in a conversation about British politics in 1982 have the same referent as the expression *the Leader of the Conservative Party* in the same conversation? *Yes / No*

(2) Take the schematic utterance "X hasn't a hope of winning the next election". If we replace X by either "the Prime Minister" or "the Leader of the Conservative Party", will the two resultant utterances be equivalent in meaning, i.e. both describe exactly the same state of affairs? (Assume still the context of a conversation about British politics in 1982.) *Yes / No*

(3) Assume a situation in which John is standing alone in the corner. Would *John* and *the person in the corner* refer to the same individual in a conversation about this situation? *Yes / No*

(4) In the conversation about the situation in which John is alone in the corner, would the following two utterances make exactly the same claim?
"John looks as if he's about to faint"
"The person in the corner looks as if he's about to faint" *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes (4) Yes

Comment Normally, one expects that utterances which differ only in that they use different expressions referring to the same thing (or person) will have the same meaning, as in the above examples. Indeed, this normally is the case. But there is a class of exceptions to this generalization. This is the class of examples involving opaque contexts.

Definition An OPAQUE CONTEXT is a part of a sentence which could be made into a complete sentence by the addition of a referring expression, but where the addition of different referring expressions, even though they refer to the same thing or person, in a given situation, will yield sentences with DIFFERENT meanings when uttered in a given situation.

Example

The incomplete sentence *Dennis thinks that . . . is a genius* constitutes an opaque context, because, even in a conversation about British politics in 1982, the following two utterances would make different claims:

A: "Dennis thinks that the Prime Minister is a genius"

B: "Dennis thinks that the Leader of the Conservative Party is a genius"

If, for example, Dennis believes erroneously that the Prime Minister is not the Leader of the Conservative Party, then A and B will mean different things.

Practice

(1) In a conversation about a situation where John is standing alone in the corner, do "John" and "the person in the corner" have the same referent? *Yes / No*

(2) Consider the following two utterances:
"Dick believes that John killed Smith"
"Dick believes that the person in the corner killed Smith"
Assume that Dick does not know that John is the person in the corner; could one of these two utterances be true and the other false? *Yes / No*

(3) Is *Dick believes that . . . killed Smith* an opaque context? *Yes / No*

(4) The Morning Star is the Evening Star: they are both in fact the planet Venus. Assuming that Nancy does not know this, do the following make the same claim about Nancy's wishes?
"Nancy wants to get married when the Morning Star is in the sky"
"Nancy wants to get married when the Evening Star is in the sky" *Yes / No*

(5) Is *Nancy wants to get married when . . . is in the sky* an opaque context? *Yes / No*

(6) Imagine a situation in which the last banana on the table is the prize in a game of charades, but that Gary, who came late to the party, is not aware of this. Do the following make the same claim in this situation?
"Gary took the last banana"
"Gary took the prize" *Yes / No*

(7) Is *Gary took . . .* an opaque context? *Yes / No*

Feedback

(1) Yes (2) Yes (3) Yes (4) No (5) Yes (6) Yes (7) No

Comment

The term 'opaque' is especially appropriate because these contexts seem to 'block our view' through them to the referential interpretations of referring expressions.

Notice that opaque contexts typically involve a certain kind of verb, like *want*, *believe*, *think*, and *wonder about*. Note that it was often in the context of such opacity-creating verbs that indefinite noun phrases could be ambiguous between a referring and a non-referring interpretation, as in "Nancy wants to marry a Norwegian".

Turning away now from the question of opacity, and back to the more basic notion of referring expressions, we define a further notion, that of equative sentence.

Definition An EQUATIVE SENTENCE is one which is used to assert the identity of the referents of two referring expressions, i.e. to assert that two referring expressions have the same referent.

Example The following are equative sentences:
Mrs Thatcher is the Prime Minister
That woman over there is my daughter's teacher

Practice Are the following equative sentences?

(1) *John is the person in the corner* — *Yes / No*
(2) *Henry the Eighth is the current President of the USA* — *Yes / No*
(3) *Cairo is not the largest city in Africa* — *Yes / No*
(4) *Cairo is a large city* — *Yes / No*
(5) *Dr Jekyll is Mr Hyde* — *Yes / No*
(6) *Ted is an idiot* — *Yes / No*

Feedback (1) Yes (2) Yes, equative sentences can be false. (3) No (4) No, this sentence does not state identity of reference. (5) Yes (6) No

Comment A feature of many equative sentences is that the order of the two referring expressions can be reversed without loss of acceptability.

Example
The largest city in Africa is Cairo
Cairo is the largest city in Africa

Comment The 'reversal test' applied here is not a perfect diagnostic for equative sentences, however. In *What I need is a pint of Guinness*, *a pint of Guinness* is not a referring expression, because a user of this sentence would not have any particular pint of Guinness in mind, but the sentence is nevertheless reversible, as in *A pint of Guinness is what I need*. And the sentence *That is the man who kidnapped my boss* definitely is equative, but it is not reversible, as *The man who kidnapped my boss is that* is unacceptable.

Summary At first sight the notion of reference as a relation between expressions

used in utterances and people and objects in the world seems straightforward enough. But stating simple generalizations about when an expression is actually a referring expression and when it is not, is, to say the least, difficult. Both indefinite and definite noun phrases can be ambiguous between referring and non-referring interpretations, with the appropriate interpretation being highly dependent on linguistic context (i.e. the surrounding words) and the circumstances of the utterance. The existence of opaque contexts also provides interesting complications to the contribution of referring expressions to meaning.

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UNIT 5
PREDICATES

Entry requirements

REFERENCE and SENSE (Unit 3) and REFERRING EXPRESSIONS (Unit 4). If you feel you understand these notions, take the entry test below. If not, review Units 3 and 4.

Entry test

(1) Which of the following is the phrase *a tall tree*? Circle your answer.
   (a) a referring expression
   (b) not a referring expression
   (c) sometimes a referring expression and sometimes not, depending on context and circumstances of use

(2) Is the following statement correct (*Yes*) or incorrect (*No*)? Whether a sentence contains any referring expressions or not depends on the time and place at which the sentence occurs. *Yes / No*

(3) Which of the following sentences is equative? Circle your answer.
   (a) *Mahmoud is an Egyptian*
   (b) *I was telling you about Mahmoud the Egyptian*
   (c) *Mahmoud is the Egyptian I was telling you about*
   (d) *Mahmoud is a genius*

(4) Does *if* have sense in the same way that *dog* has sense? *Yes / No*

(5) Do the expressions *big* and *large* have the same sense in the following sentences?
   I live in a big house
   I live in a large house *Yes / No*

(6) Circle those of the following words which can be referring expressions (in normal everyday English).
   John, *below*, *Venus*, *swims*, *round*, *beautiful*, *under*, *went*.

Feedback

(1) (c) (2) No: replace 'sentence' by 'utterance' to get a correct statement. (3) (c) (4) No (5) Yes (6) *John*, *Venus*
If you have scored less than 5 correct out of 6, you should review the relevant unit. If you have scored at least 5 correct out of 6, continue to the introduction.

Introduction

We start by examining the semantic structure of simple declarative sentences, such as *My dog bit the postman* or *Mrs Wraith is waiting for the downtown bus*. Typically such sentences contain one or more referring expressions, plus some other words that do not form part of any of

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the referring expressions. It is on these other words that we shall now concentrate.

Practice

In the following sentences, delete the referring expressions and write down the remainder to the right of the example. We have done the first one for you.

(1) *~~My dog~~ bit ~~the postman~~* _____ *bit* _____

(2) *Mrs Wraith is writing the Mayor's speech* _____

(3) *Cairo is in Africa* _____

(4) *Edinburgh is between Aberdeen and York* _____

(5) *This place stinks* _____

(6) *John's car is red* _____

(7) *Einstein was a genius* _____

Feedback

(2) *~~Mrs Wraith~~ is writing ~~the Mayor's speech~~* — *is writing*
(3) *~~Cairo~~ is in ~~Africa~~* — *is in*
(4) *~~Edinburgh~~ is between ~~Aberdeen~~ and ~~York~~* — *is between, and*
(5) *~~This place~~ stinks* — *stinks*
(6) *~~John's car~~ is red* — *is red*
(7) *~~Einstein~~ was a genius* — *was a genius*

Comment

The 'remainders' written in the right-hand column are quite a varied set. But in each case it is possible to discern one word (or part of a word) which 'carries more meaning' than the others. For instance, *write* in example (2) carries more specific information than *is* and the suffix *-ing*. If one strips away such less meaningful elements, one is left with a sequence of words, which, though ungrammatical and inelegant, can still be understood as expressing a proposition. The result is a kind of 'Tarzan jungle talk', e.g. *Boy bad* for *The boy is bad*, or *Woman write speech* for *The woman is writing the speech.*

Practice

Listed below are the remainders from the above examples. In each case, write down the single word (or part of a word) which carries the most specific information. We have done the first one for you.

(1) *is writing* _____ *write* _____

(2) *is in* _____

(3) *is between, and* _____

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(4) *stinks* _____

(5) *is red* _____

(6) *was a genius* _____

Feedback (2) *in* (3) *between* (4) *stink* (5) *red* (6) *genius*

Comment The words we have just isolated from their original sentences we call the predicators of those sentences.

Definition (partial) The PREDICATOR of a simple declarative sentence is the word (sometimes a group of words) which does not belong to any of the referring expressions and which, of the remainder, makes the most specific contribution to the meaning of the sentence.

Example *asleep* is the predicator in *Mummy is asleep*

love is the predicator in *The white man loved the Indian maiden*

wait for is the predicator in *Jimmy was waiting for the downtown bus*

Comment Note that some of the elements that we have stripped away in isolating the predicator of a sentence do carry a certain amount of meaning. Thus the indicators of past and present tense are clearly meaningful. The semantics of tense is interesting, but its contribution to the meaning of a sentence is of a different type from the contribution made by the predicator, and will not be pursued here. Notice also that the verb *be* in its various forms (*is*, *was*, *are*, *were*, *am*) is not the predicator in any example sentence that we have seen so far.

Practice Strip away referring expressions and the verb *be* (and possibly other elements) to identify the predicators in the following sentences:

(1) *I am hungry* _____

(2) *Joe is in San Francisco* _____

(3) *The Mayor is a crook* _____

(4) *The man who lives at number 10 Lee Crescent is whimsical* _____

(5) *The Royal Scottish Museum is behind Old College* _____

Feedback (1) *hungry* (2) *in* (3) *crook* (4) *whimsical* (5) *behind*

Comment The predicators in sentences can be of various parts of speech: adjectives (*red*, *asleep*, *hungry*, *whimsical*), verbs (*write*, *stink*, *place*), prepositions (*in*, *between*, *behind*) and nouns (*crook*, *genius*). Despite the obvious syntactical differences between these different types of words, semantically they all share the property of being able to function as the predicators of sentences. Words of other parts of speech, such as conjunctions (*and*, *but*, *or*), articles (*the*, *a*) cannot serve as predicators in sentences.

The semantic analysis of simple declarative sentences reveals two major semantic roles played by different subparts of the sentence. These are the role of predicator, illustrated above, and the role(s) of argument(s), played by the referring expression(s).

Example

Juan is Argentinian predicator: *Argentinian*, argument: *Juan*

Juan arrested Pablo predicator: *arrest*, arguments: *Juan*, *Pablo*

Juan took Pablo to Rio predicator: *take*, arguments: *Juan*, *Pablo*, *Rio*

Practice In the following sentences, indicate the predicators and arguments as in the above examples:

(1) *Dennis is a menace*

predicator: _____ argument(s): _____

(2) *Hamish showed Morag his sporran*

predicator: _____ argument(s): _____

(3) *Donald is proud of his family*

predicator: _____ argument(s): _____

(4) *The hospital is outside the city*

predicator: _____ argument(s): _____

Feedback (1) pred: *menace*, arg: *Dennis* (2) pred: *show*, args: *Hamish*, *Morag*, *his sporran* (3) pred: *proud*, args: *Donald*, *his family* (4) pred: *outside*, args: *the hospital*, *the city*

Comment The semantic analysis of a sentence into predicator and argument(s) does not correspond in most cases to the grammatical analysis of a sentence into subject and predicate, although there is some overlap between the semantic and the grammatical analyses, as can be seen from the examples above. We shall be concerned almost exclusively

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in this book with the semantic analysis of sentences, and so will not make use of the notion 'grammatical predicate (phrase)'. But we will use the term 'predicate' in a semantic sense, to be defined below, developed within Logic.

Definition

A PREDICATE is any word (or sequence of words) which (in a given single sense) can function as the predicator of a sentence.

Example

hungry, *in*, *crook*, *asleep*, *hit*, *show*, *bottle*, are all predicates

and, *or*, *but*, *not*, are not predicates

Practice

Are the following predicates?

(1)	*dusty*	*Yes / No*	(4)	*you*	*Yes / No*
(2)	*drink*	*Yes / No*	(5)	*Fred*	*Yes / No*
(3)	*woman*	*Yes / No*	(6)	*about*	*Yes / No*

Feedback

(1) Yes (2) Yes (3) Yes (4) No (5) No (6) Yes

Comment

The definition of 'predicate' above contained two parenthesized conditions. The first, '(or sequence of words)', is intended to take care of examples like *wait for*, *in front of*, which are longer than one word, but which it seems sensible to analyse as single predicates.

The second parthesized condition, '(in a given single sense)', is more important, and illustrates a degree of abstractness in the notion of a predicate. A 'word', as we use the term, can be ambiguous, i.e. can have more than one sense, but we use 'predicate' in a way which does not allow a predicate to be ambiguous. A predicate can have only one sense. Normally, the context in which we use a word will make clear what sense (what predicate) we have in mind, but occasionally, we shall resort to the use of subscripts on words to distinguish between different predicates. (We do this especially in Unit 16 'About dictionaries'.)

Example

The word *bank* has (at least) two senses. Accordingly, we might speak of the predicates $bank_1$ and $bank_2$.

Similarly, we might distinguish between the predicates man_1 (noun) = human being, man_2 (noun) = male adult human being, and man_3 (transitive verb) as in *The crew manned the lifeboats*.

Comment

Notice that 'predicate' and 'predicator' are terms of quite different sorts. The term 'predicate' identifies elements in the language system, independently of particular example sentences. Thus, it would make sense to envisage a list of the predicates of English, as included, say, in a dictionary. The term 'predicator' identifies the semantic role played by

a particular word (or group of words) in a particular sentence. In this way, it is similar to the grammatical term 'subject': one can talk of the subject of a particular sentence, but it makes no sense to talk of a list of 'the subjects of English': similarly, one can talk of the 'predicator' in a particular sentence, but not list 'the predicators of English'. A simple sentence only has one predicator, although it may well contain more than one instance of a predicate.

Example

A tall, handsome stranger entered the saloon
This sentence has just one predicator, *enter*, but the sentence also contains the words *tall*, *handsome*, *stranger* and *saloon*, all of which are predicates, and can function as predicators in other sentences, e.g. *John is tall*, *He is handsome*, *He is a stranger*, and *That ramshackle building is a saloon.*

Practice

(1) In which of the following sentences does the predicate *male* function as a predicator? Circle your choice.
   (a) *The male gorilla at the zoo had a nasty accident yesterday*
   (b) *The gorilla at the zoo is a male*
   (c) *The gorilla at the zoo is male*

(2) In which of the following sentences does the predicate *human* function as predicator?
   (a) *All humans are mortal*
   (b) *Socrates was human*
   (c) *These bones are human*

Feedback

(1) (b), (c) (2) (b), (c)

Comment

We turn now to the matter of the degree of predicates.

Definition

The DEGREE of a predicate is a number indicating the number of arguments it is normally understood to have in simple sentences.

Example

Asleep is a predicate of degree one (often called a one-place predicate)
Love (verb) is a predicate of degree two (a two-place predicate)

Practice

(1) Are the following sentences acceptable?
   (a) *Thornbury sneezed* — *Yes / No*
   (b) *Thornbury sneezed a handful of pepper* — *Yes / No*
   (c) *Thornbury sneezed his wife a handful of pepper* — *Yes / No*

(2) So is *sneeze* a one-place predicate? — *Yes / No*

(3) Are the following sentences acceptable in normal usage?
   (a) *Martha thumped* — *Yes / No*

(b) *Martha thumped the sideboard* *Yes / No*
(c) *Martha thumped George the sideboard* *Yes / No*
(4) So is *thump* a one-place predicate? *Yes / No*
(5) Is *die* a one-place predicate? *Yes / No*
(6) Is *come* a one-place predicate? *Yes / No*
(7) Is *murder* (verb) a one-place predicate? *Yes / No*

Feedback (1) (a) Yes (b) No (c) No (2) Yes (3) (a) No (b) Yes (c) No (4) No (5) Yes (6) Yes (7) No

Comment A verb that is understood most naturally with just two arguments, one as its subject, and one as its object, is a two-place predicate.

Example In *Martha thumped the parrot*, *thump* is a two-place predicate: it has an argument, *Martha*, as subject and an argument, *the parrot*, as direct object.

Practice

(1) Are the following sentences acceptable?
(a) *Keith made* *Yes / No*
(b) *Keith made this toy guillotine* *Yes / No*
(c) *Keith made this toy guillotine his mother-in-law* *Yes / No*
(2) So is *make* a two-place predicate? *Yes / No*
(3) Is *murder* a two-place predicate? *Yes / No*
(4) Is *see* a two-place predicate? *Yes / No*

Feedback (1) (a) No (b) Yes (c) No (2) Yes (3) Yes (4) Yes

Comment There are a few three-place predicates; the verb *give* is the best example.

Practice For each of the following sentences, say whether it seems somewhat elliptical (i.e. seems to omit something that one would normally expect to be mentioned). Some of these sentences are more acceptable than others.

(1) *Herod gave* *Yes / No*
(2) *Herod gave Salome* *Yes / No*
(3) *Herod gave a nice present* *Yes / No*
(4) *Herod gave Salome a nice present* *Yes / No*

(5) How many referring expressions are there in Sentence (4) _____

Feedback (1) Yes (2) Yes (3) Yes: one would normally mention the receiver of a present. (4) No (5) three

Comment

We have concentrated so far on predicates that happen to be verbs. Recall examples such as *Cairo is in Africa*, *Cairo is dusty*, *Cairo is a large city*. In these examples *in* (a preposition), *dusty* (an adjective), and *city* (a noun) are predicates.

In the case of prepositions, nouns and adjectives, we can also talk of one-, two-, or three-place predicates.

Practice

(1) How many referring expressions are there in *Your marble is under my chair*? 2

(2) Is *Your marble is under* acceptable in normal usage? *Yes / No*

(3) Is *Your marble is under my chair the carpet* acceptable in normal usage? *Yes / No*

(4) So, of what degree is the predicate *under* (i.e. a how-many-place-predicate is *under*)? 2

(5) Of what degree is the predicate *near*? 2

(6) Is *Dundee is between Aberdeen* acceptable? *Yes / No*

(7) Is *Dundee is between Aberdeen and Edinburgh* acceptable? *Yes / No*

(8) Of what degree is the predicate *between*? 3

Feedback

(1) two (2) No (3) No (4) two (5) two (6) No (7) Yes (8) three

Comment

We will now turn our attention to adjectives.

Practice

(1) How many referring expressions are there in *Philip is handsome*? 1

(2) Is *Philip is handsome John* (not used when addressing John) acceptable? *Yes / No*

(3) Of what degree is the predicate *handsome*? 1

(4) Of what degree is the predicate *rotten*? 1

(5) Of what degree is the predicate *smelly*? 1

Feedback

(1) one (2) No (3) one (4) one (5) one

Comment

In fact, the majority of adjectives are one-place predicates.

Practice

(1) Is *John is afraid of Fido* acceptable? *Yes / No*

(2) Does *John is afraid* seem elliptical (i.e. does it seem to leave something unmentioned)? *Yes / No*

(3) Could *afraid* be called a two-place predicate? *Yes / No*
(4) Is *Your house is different from mine* acceptable? *Yes / No*
(5) Does *Your house is different* seem elliptical? *Yes / No*
(6) Of what degree is the predicate *different*? 2
(7) Of what degree is the predicate *identical*? 2
(8) Of what degree is the predicate *similar*? 2

Feedback (1) Yes (2) Yes (3) Yes (4) Yes (5) Yes (6) two (7) two (8) two

Comment You may have wondered about the role of the prepositions such as *of* and *from* in *afraid of* and *different from*. These prepositions are not themselves predicates. Some adjectives just require (grammatically) to be joined to a following argument by a preposition. Such prepositions are relatively meaningless linking particles. Notice that one can often use different linking prepositions with no change of meaning, e.g. (in some dialects) *different to*, or even *different than*.

We now turn to predicates which are nouns.

Practice
(1) How many referring expressions are there in *John is a corporal*? 1
(2) Is *John is a corporal the army* acceptable? *Yes / No*
(3) Of what degree is *corporal*? 1
(4) Of what degree is *hero*? 1
(5) Of what degree is *crook*? 1
(6) How many referring expressions are there in *This object is a pitchfork*? 1
(7) Of what degree is *pitchfork*? 1

Feedback (1) one (2) No (3) one (4) one (5) one (6) one (7) one

Comment Most nouns are one-place predicates. But a few nouns could be said to be 'inherently relational'. These are nouns such as *father*, *son*, *brother*, *mother*, *daughter*, *neighbour*.

Practice
(1) Does *John is a brother* seem somewhat odd? *Yes / No*
(2) Is *John is a brother of the Mayor of Leicester* acceptable? *Yes / No*

(3) Could *brother* be called a two-place predicate? *Yes / No*
(4) Could *sister* be called a two-place predicate? *Yes / No*

Feedback (1) Yes, it would be completely acceptable only in a somewhat unusual context. (2) Yes (3) Yes (4) Yes

Comment Sometimes two predicates can have nearly, if not exactly, the same sense, but be of different grammatical parts of speech.

Example *Ronald is foolish, Ronald is a fool*

Timothy is afraid of cats, Timothy fears cats

My parrot is a talker, My parrot talks

Comment We conclude this unit by discussing one special relation, the identity relation. This is the relation found in equative sentences (Unit 4, p. 40). In English, the identity of the referents of two different referring expressions is expressed by a form of the verb *be*.

Example *Ronald Reagan is the 40th President of the United States*

The 40th President of the United States is Ronald Reagan

Practice All of the following sentences contain a variant of the verb *be*. In which sentences does a form of *be* express the identity relation? Circle your choices.

(1) *This is a spider*
(2) *This is my father*
(3) *This is the person I was telling you about at dinner last night*
(4) *The person I was telling you about at dinner last night is in the next room*
(5) *The person I was telling you about at dinner last night is the man talking to Harry*
(6) *The whale is a mammal*

Feedback The identity relation is expressed by a form of *be* in sentences (2), (3) and (5).

Comment The identity relation is special because of its very basic role in the communication of information. In English, one must analyse some instances of the verb *be* (e.g. those in sentences (2), (3), (5) above) as instances of the identity predicate. Other instances of the verb *be*, as we have seen, are simply a grammatical device for linking a predicate that is not a verb (i.e. an adjective, preposition, or noun) to its first argument, as in *John*

is a fool or *John is foolish*. The verb *be* is also a device for 'carrying' the tense (present or past) of a sentence.

Summary

The predicates of a language have a completely different function from the referring expressions. The roles of these two kinds of meaning-bearing element cannot be exchanged. Thus *John is a bachelor* makes good sense, but *Bachelor is a John* makes no sense at all. Predicates include words from various parts of speech, e.g. common nouns, adjectives, prepositions, and verbs. We have distinguished between predicates of different degrees (one-place, two-place, etc.). The relationship between referring expressions and predicates will be explored further in the next unit.

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UNIT 6
PREDICATES, REFERRING EXPRESSIONS, AND UNIVERSE OF DISCOURSE

Entry requirements

REFERRING EXPRESSION (Unit 4) and PREDICATE (Unit 5). If you feel you understand these notions, take the entry test below. Otherwise, review Units 4 and 5.

Entry test

(1) Say which of the following sentences are equative (*E*), and which are not (*N*).

(a) *My parrot is holidaying in the South of France* *E / N*
(b) *Dr Kunastrokins is an ass* *E / N*
(c) *Tristram Shandy is a funny book* *E / N*
(d) *Our next guest is Dr Kunastrokins* *E / N*

(2) Circle the referring expressions in the following sentences.

(a) *I am looking for any parrot that can sing*
(b) *Basil saw a rat*
(c) *These matches were made in Sweden*
(d) *A dentist is a person who looks after people's teeth*

Feedback

(1) (a) N (b) N (c) N (d) E (2) (a) *I* (b) *Basil, a rat* (c) *these matches, Sweden* (d) None

If you have scored less than 4 out of 4 correct in (1) you should review 'Predicates' (Unit 5). If you have scored less than 4 out of 4 correct in (2) you should review 'Referring Expressions' (Unit 4). If you got the test completely right, continue to the introduction.

Introduction

We explore further the distinction and the relationship between referring expressions and predicates. We will see how the same word can be used for the radically different functions of reference and predication. And we will begin to see how these two functions fit together in the overall language system.

Comment

Some expressions are almost always referring expressions no matter what sentences they occur in.

Practice

(1) Can the proper name *Mohammed Ali* ever be used as the predicator of a sentence? *Yes / No*

(2) Can the proper name *Cairo* ever be used as a predicator of a sentence? *Yes / No*

(3) In general can proper names ever be used as predicators? *Yes / No*

(4) Can the verb *hit* ever be used as a referring expression? *Yes / No*
(5) Can the preposition *on* ever be used as a referring expression? *Yes / No*
(6) In general, can any verb or preposition be used to refer? *Yes / No*

Feedback

(1) No (2) No (3) No (We would analyse cases like *That man is an Einstein* as being figurative for *That man is similar to Einstein*, where the real predicate is *similar*, and not *Einstein*, but this analysis could conceivably be challenged.)
(4) No (5) No (6) No: they are always predicates and can never be used as referring expressions.

Comment

The distinction between referring expressions and predicates is absolute: there is not a continuum running from proper names at one end, through 'borderline cases' to verbs and prepositions at the other. Either an expression is used in a given utterance to refer to some entity in the world or it is not so used.

There are some phrases, in particular indefinite noun phrases, that can be used in two ways, either as referring expressions, or as predicating expressions.

Practice

(1) Is *a man* in *John attacked a man* a referring expression? *Yes / No*
(2) Is *a man* in *John is a man* a referring expression? *Yes / No*

Feedback

(1) Yes (2) No

Comment

A man can be either a referring expression or a predicating expression, depending on the context. The same is true of other indefinite NPs. On the face of it, this may seem startling. How are we able to use the same expressions for different purposes? We will try to untangle this riddle.

Practice

(1) Imagine that you and I are in a room with a man and a woman, and, making no visual signal of any sort, I say to you, "The man stole my wallet". In this situation, how would you know the referent of the subject referring expression?

---

(2) If in the situation described above I had said, "A man stole my wallet", would you automatically know the referent of the subject expression *a man*? *Yes / No*
(3) So does the definite article, *the*, prompt the hearer to (try to) identify the referent of a referring expression? *Yes / No*

(4) Does the indefinite article, *a*, prompt the hearer to (try to) identify the referent of a referring expression? *Yes / No*

Feedback

(1) By finding in the room an object to which the predicate contained in the subject referring expression (i.e. *man*) could be truthfully applied (2) No (3) Yes (4) No

Comment

The presence of a predicate in a referring expression helps the hearer to identify the referent of a referring expression. Notice that we have just drawn a distinction between referring and identifying the referent of a referring expression. We will explore this distinction.

Practice

(1) Can the referent of the pronoun *I* be uniquely identified when this pronoun is uttered? *Yes / No*

(2) Can the referent of the pronoun *you* be uniquely identified when this pronoun is uttered? *Yes / No*

(3) Imagine again the situation where you and I are in a room with a man and a woman, and I say to you (making no visual gesture), "She stole my wallet". Would you be able to identify the referent of *She*? *Yes / No*

Feedback

(1) Yes (if equating it with the speaker of the utterance is regarded as sufficient identification). (2) In many situations it can, but not always. (We usually, but not always, know who is being addressed.) (3) Yes (that is, in the situation described, if I say to you, "She stole my wallet", you extract from the referring expression *She* the predicate *female*, which is part of its meaning, and look for something in the speech situation to which this predicate could truthfully be applied. Thus in the situation envisaged, you identify the woman as the referent of *She*. If there had been two women in the room, and no other indication were given, the referent of *She* could not be uniquely identified.)

Comment

To sum up, predicates do not refer. But they can be used by a hearer when contained in the meaning of a referring expression, to identify the referent of that expression. Some more examples follow:

Practice

(1) Does the phrase *in the corner* contain any predicates? *Yes / No*

(2) Is the phrase *the man who is in the corner* a referring expression? *Yes / No*

(3) Do the predicates in the phrase *in the corner* help to identify the referent of the referring expression in (2) above? *Yes / No*

(4) Is the predicate *bald* contained in the meaning of *the bald man*? *Yes / No*

(5) Is the predicate *man* contained in the meaning of *the bald man*? *Yes / No*

Feedback (1) Yes (*in* and *corner*) (2) Yes (We say that the phrase *in the corner* is embedded in the longer phrase.) (3) Yes (4) Yes (5) Yes

Comment Speakers refer to things in the course of utterances by means of referring expressions. The words in a referring expression give clues which help the hearer to identify its referent. In particular, predicates may be embedded in referring expressions as, for instance, the predicates *man*, *in* and *corner* are embedded in the referring expression *the man in the corner*. The correct referent of such a referring expression is something which completely fits, or satisfies, the description made by the combination of predicates embedded in it.

We now introduce the notion of a generic sentence. So far, we have developed an analysis of a very common sentence type, containing a subject, which is a referring expression, and a predicate (and possibly other expressions). Not all sentences are of this type.

Practice

(1) In *The whale is the largest mammal* (interpreted in the most usual way) does *the whale* pick out some particular object in the world (a whale)? *Yes / No*
(2) So is *The whale* here a referring expression? *Yes / No*
(3) In *The whale is the largest mammal* does *the largest mammal* refer to some particular mammal? *Yes / No*
(4) So are there any referring expressions in *The whale is the largest mammal*? *Yes / No*

Feedback (1) No (2) No (3) No (4) No

Definition A GENERIC SENTENCE is a sentence in which some statement is made about a whole unrestricted class of individuals, as opposed to any particular individual.

Example *The whale is a mammal* (understood in the most usual way) is a generic sentence.

That whale over there is a mammal is not a generic sentence.

Comment Note that generic sentences can be introduced by either *a* or *the* (or neither).

Practice Are the following generic sentences?

(1) *Gentlemen prefer blondes* *Yes / No*
(2) *Jasper is a twit* *Yes / No*
(3) *The male of the species guards the eggs* *Yes / No*
(4) *A wasp makes its nest in a hole in a tree* *Yes / No*
(5) *A wasp just stung me on the neck* *Yes / No*

Feedback (1) Yes (2) No (3) Yes (4) Yes (5) No

Comment Language is used for talking about things in the real world, like parrots, paper-clips, babies, etc. All of these things exist. But the things we can talk about and the things that exist are not exactly the same. We shall now explore the way in which language creates unreal worlds and allows us to talk about non-existent things. We start from the familiar notion of reference.

Our basic, and very safe, definition of reference (Unit 3) was as a relationship between part of an utterance and a thing in the world. But often we use words in a way which suggests that a relationship exactly like reference holds between a part of an utterance and non-existent things. The classic case is that of the word *unicorn.*

Practice

(1) Do unicorns exist in the real world? *Yes / No*
(2) In which two of the following contexts are unicorns most frequently mentioned? Circle your answer.
  (a) in fairy stories
  (b) in news broadcasts
  (c) in philosophical discussions about reference
  (d) in scientific text books
(3) Is it possible to imagine worlds different in certain ways from the world we know actually to exist? *Yes / No*
(4) In fairy tale and science fiction worlds is everything different from the world we know? *Yes / No*
(5) In the majority of fairy tales and science fiction stories that you know, do the fictional characters discourse with each other according to the same principles that apply in real life? *Yes / No*
(6) Do fairy tale princes, witches, etc. seem to refer in their utterances to things in the world? *Yes / No*

Feedback (1) No (2) (a) and (c) (3) Yes (4) No, otherwise we could not comprehend them. (5) Yes (6) Yes

Comment Semantics is concerned with the meanings of words and sentences and it would be an unprofitable digression to get bogged down in questions

of what exists and what doesn't. We wish to avoid insoluble disagreements between atheist and theist semanticists, for example, over whether one could refer to God. To avoid such problems, we adopt a broad interpretation of the notion referring expression (see Unit 4) so that any expression that can be used to refer to any entity in the real world or in any imaginary world will be called a referring expression.

Practice

According to this view of what counts as a referring expression, are the following possible referring expressions, i.e. could they be used in utterances to refer (either to real or to fictitious entities)?

(1)	*God*	*Yes / No*	(3)	*Moses*	*Yes / No*
(2)	*and*	*Yes / No*	(4)	*that unicorn*	*Yes / No*

Feedback

(1) Yes (2) No (3) Yes (4) Yes

Comment

Notice that we only let our imagination stretch to cases where the things in the world are different; we do not allow our imagination to stretch to cases where the principles of the structure and use of language are different. To do so would be to abandon the object of our study. So we insist (as in (2) above) that the English conjunction *and*, for example, could never be a referring expression.

The case of unicorns was relatively trivial. Now we come to some rather different cases.

Practice

(1) If unicorns existed, would they be physical objects? *Yes / No*

(2) Do the following expressions refer to physical objects?

(a) *Christmas Day 1980* *Yes / No*
(b) *one o'clock in the morning* *Yes / No*
(c) *when Eve was born* *Yes / No*
(d) *93 million miles* *Yes / No*
(e) *the distance between the Earth and the Sun* *Yes / No*
(f) *"God Save the Queen"* *Yes / No*
(g) *the British national anthem* *Yes / No*
(h) *eleven hundred* *Yes / No*
(i) *one thousand one hundred* *Yes / No*

Feedback

(1) Yes (2) (a)–(i) No

Comment

So far we have mainly kept to examples of reference to physical objects, like *John*, *my chair*, *the cat* and *Cairo*. What are we to make of expressions like *tomorrow* and *the British national anthem*, which cannot possibly be said to refer to physical objects? It is in fact reasonable

to envisage our notion of reference in such a way that we can call these referring expressions also, because language uses these expressions in many of the same ways as it uses the clear cases of referring expressions.

Even though expressions like *tomorrow*, *the British national anthem*, *eleven hundred*, *the distance between the Earth and the Sun* etc. do not indicate physical objects, language treats these expressions in a way exactly parallel to referring expressions. We call them referring expressions along with *John*, *the roof*, and *Cairo*. We say that *the British national anthem* is used to refer to a particular song, that *eleven hundred* is used to refer to a particular number, *one o'clock* to a particular time, *93 million miles* to a particular distance, and so on.

Language is used to talk about the real world, and can be used to talk about an infinite variety of abstractions, and even of entities in imaginary, unreal worlds.

Definition

We define the UNIVERSE OF DISCOURSE for any utterance as the particular world, real or imaginary (or part real, part imaginary) that the speaker assumes he is talking about at the time.

Example

When an astronomy lecturer, in a serious lecture, states that the Earth revolves around the Sun, the universe of discourse is, we all assume, the real world (or universe).

When I tell my children a bedtime story and say "The dragon set fire to the woods with his hot breath", the universe of discourse is not the real world but a fictitious world.

Practice

Is the universe of discourse in each of the following cases the real world (as far as we can tell) (*R*), or a (partly) fictitious world (*F*)?

(1) Newsreader on April 14th 1981: "The American space-shuttle successfully landed at Edwards Airforce Base, California, today" *R / F*

(2) Mother to child: "Don't touch those berries. They might be poisonous" *R / F*

(3) Mother to child: "Santa Claus might bring you a toy telephone" *R / F*

(4) Patient in psychiatric ward: "As your Emperor, I command you to defeat the Parthians" *R / F*

(5) Doctor to patient: "You cannot expect to live longer than another two months" *R / F*

(6) Patient (joking bravely): "When I'm dead, I'll walk to the cemetery to save the cost of a hearse" *R / F*

Feedback

(1) R (2) R (3) F (4) F (5) R (6) F, dead people do not walk in the real world

Comment These were relatively clear cases. Note that no universe of discourse is a totally fictitious world. Santa Claus is a fiction, but the toy telephones he might bring do actually exist. So in examples like this we have interaction between fact and fiction, between real and imaginary worlds. When two people are 'arguing at cross-purposes', they could be said to be working within partially different universes of discourse.

Example

Theist: "Diseases must serve some good purpose, or God would not allow them"
Atheist: "I cannot accept your premisses"
Here the theist is operating with a universe of discourse which is a world in which God exists. The atheist's assumed universe of discourse is a world in which God does not exist.

Practice

In the following situations, are the participants working with the same universe of discourse (*S*), or different universes (*D*), as far as you can tell?

(1) A: "Did Jack's son come in this morning?"
B: "I didn't know Jack had a son"
A: "Then who's that tall chap that was here yesterday?"
B: "I don't know, but I'm pretty sure Jack hasn't got any kids"
A: "I'm sure Jack's son was here yesterday" *S / D*

(2) Time traveller from the eighteenth century: "Is the King of France on good terms with the Tsar of Russia?"
Late twentieth-century person: "Huh?" *S / D*

(3) Optician: "Please read the letters on the bottom line of the card"
Patient: "E G D Z Q N B A"
Optician: "Correct. Well done" *S / D*

Feedback (1) D: in A's universe of discourse Jack's son exists; in B's he does not. (2) D (3) S

Comment Assuming the same universe of discourse is essential to successful communication. The participants in questions (1) and (2) are in a sense talking about different worlds. (Assuming different universes of discourse is not the only reason for breakdown of communication: there can be other causes – both participants' assuming that exactly the same entities exist in the world, but referring to them by different words (an extreme case of this would be two participants speaking different languages) – or, of course, sheer inarticulacy.)

Summary In the course of utterances, speakers use referring expressions to refer

to entities which may be concrete or abstract, real or fictitious. The predicates embedded in a referring expression help the hearer to identify its referent. Semantics is not concerned with the factual status of things in the world but with meaning in language. The notion of universe of discourse is introduced to account for the way in which language allows us to refer to non-existent things.

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UNIT 7
DEIXIS AND DEFINITENESS

Entry requirements

UTTERANCE (Unit 2), IDENTIFYING THE REFERENT OF A REFERRING EXPRESSION and UNIVERSE OF DISCOURSE (Unit 6). If you feel familiar with these ideas, take the entry test below. If not, review the appropriate units.

Entry test

(1) Is an utterance tied to a particular time and place? *Yes / No*

(2) Is a sentence tied to a particular time and place? *Yes / No*

(3) Circle the referring expressions in the following utterance:
"Neil Armstrong was the first man on the Moon and became a hero"

(4) Who does "I" refer to in the following utterance?
"I will never speak to you again"

---

(5) When a speaker says to someone, "A man from Dundee stole my wallet", would he usually be assuming that the hearer will bring to mind a particular man from Dundee and be able to IDENTIFY him by associating him with facts already known about him? *Yes / No*

(6) As question (5), but with the utterance, "The man from Dundee stole my wallet". *Yes / No*

(7) Can a universe of discourse be partly fictitious? *Yes / No*

(8) If perfect communication is to take place between speaker and hearer on any topic, is it necessary that they share the same universe of discourse? *Yes / No*

Feedback

(1) Yes (2) No (3) "Neil Armstrong", "the first man on the moon"
(4) the speaker of the utterance (5) No (6) Yes (7) Yes (8) Yes
If you got less than 7 out of 8 correct, review the relevant unit. Otherwise continue to the introduction.

Introduction

Most words mean what they mean regardless of who uses them, and when and where they are used. Indeed this is exactly why words are so useful. Only if we assign a (fairly) constant interpretation to a word such as *man*, for example, can we have a coherent conversation about men. Nevertheless, all languages do contain small sets of words whose meanings vary systematically according to who uses them, and where

and when they are used. These words are called deictic words: the general phenomenon of their occurrence is called deixis. The word *deixis* is from a Greek word meaning *pointing.*

Definition

A DEICTIC word is one which takes some element of its meaning from the situation (i.e. the speaker, the addressee, the time and the place) of the utterance in which it is used.

Example

The first person singular pronoun *I* is deictic. When Ben Heasley says "I've lost the contract", the word *I* here refers to Ben Heasley. When Penny Carter says "I'll send you another one", the *I* here refers to Penny Carter.

Practice

(1) If Wyatt Earpp meets Doc Holliday in Dodge City and says, "This town ain't big enough for the both of us", what does *this town* refer to?

_____

(2) If a television news reporter, speaking in Fresno, California, says, "This town was shaken by a major earth tremor at 5 a.m. today", what does *this town* refer to?

_____

(3) In general, what clue to the identity of the referent of a referring expression is given by the inclusion of the demonstrative word *this*? Formulate your reply carefully, mentioning the notion 'utterance'.

_____

(4) If, on November 3rd 1983, I say, "Everything seemed to go wrong yesterday", what day am I picking out by the word *yesterday*?

_____

(5) If, on May 4th 1983, my daughter says to me, "Yesterday wasn't my birthday", what day is being picked out by the word *yesterday*?

_____

(6) To summarize in a general statement, what day does *yesterday* refer to?

_____

Feedback

(1) Dodge City (2) Fresno, California (3) A referring expression modified by *this* refers to an entity (place, person, thing etc.) at or near the actual place of the utterance in which it is used. (4) November 2nd 1983 (5) May 3rd 1983 (6) *Yesterday* refers to the day before the day of the utterance in which it is used.

Comment These exercises show that the words *this* and *yesterday* are deictic.

Practice Are the following words deictic?

(1) *here* *Yes / No*
(2) *Wednesday* *Yes / No*
(3) *place* *Yes / No*
(4) *today* *Yes / No*
(5) *you* *Yes / No*

Feedback (1) Yes (2) No (3) No (4) Yes (5) Yes. (The referent of *you* is the addressee(s) of the utterance in which it is used.)

Comment So far, all of our examples of deictic terms have been referring expressions, like *you*, *here* and *today*, or modifiers which can be used with referring expressions, like the demonstrative *this*. Such deictic terms help the hearer to identify the referent of a referring expression through its spatial or temporal relationship with the situation of utterance. There are also a few predicates which have a deictic ingredient.

Example The verb *come* has a deictic ingredient, because it contains the notion 'toward the speaker'.

Practice Look at the following utterances and decide whether the speaker gives any indication of his location (*Yes*) and if so, where he is (or isn't):

(1) "Go to the hospital"

Yes / No _____

(2) "The astronauts are going back to Earth"

Yes / No _____

(3) "Please don't bring food into the bathroom"

Yes / No _____

(4) "Can you take this plate into the kitchen for me?"

Yes / No _____

Feedback (1) *Yes*: not at the hospital (2) *Yes*: not on Earth (3) *Yes*: in the bathroom (4) *Yes*: not in the kitchen

Comment Some examples involve a 'psychological shifting' of the speaker's viewpoint for the purpose of interpreting one of the deictic terms.

Practice (1) If I say to you, "Come over there, please!" while pointing to a far corner of the room (i.e. far from both of us),

could you reasonably infer that I intend to move to that corner of the room as well? *Yes / No*

(2) In this instance, would it seem correct to say that the speaker is anticipating his future location when he uses the word *come* (i.e. is *come* in this case 'stretched' to include 'toward where the speaker will be')? *Yes / No*

(3) If I say to you, over the telephone, "Can I come and see you some time?" do I probably have in mind a movement to the place where I am, or to the place where you are?

Feedback (1) Yes (2) Yes (3) the place where you are

Comment This psychological shifting of viewpoint just illustrated is an example of the flexibility with which deictic terms can be interpreted. In our definition of deixis, 'time of utterance' and 'place of utterance' must generally be taken very flexibly. Sometimes these are interpreted very broadly, and sometimes very narrowly and strictly.

In addition to deictic words (such as *here*, *now*, *come*, and *bring*), there are in English certain grammatical devices for indicating past, present, and future time, which must also be regarded as deictic, because past, present, and future times are defined by reference to the time of utterance.

Practice (1) If Matthew said (truthfully) "Mummy, Rosemary hit me", when did Rosemary hit Matthew, before, at, or after the time of Matthew's utterance?

---

(2) If Matthew (truthfully) says, "Mummy, Rosemary is writing on the living room wall", when is Rosemary committing this misdemeanour, before, at, or after the time of Matthew's utterance?

---

(3) If I say (truthfully) "I'm going to write a letter to the President", when do I write to the President?

---

(4) In each of the following utterances, what can you deduce about the date of the utterance?

(a) "I first met my wife in the year 1993"

(b) "The 1936 Olympic Games will be held in Berlin"

Feedback

(1) before the utterance (2) at the time of the utterance (Perhaps before and after as well, but, strictly, Matthew isn't saying anything about what happens before or after his utterance.) (3) after the time of my utterance (4) (a) This utterance can only truthfully be made in or after the year 1993. (b) This utterance must have been made in or before 1936.

Comment

Although tense is definitely deictic, as illustrated above, the issue is complicated by the fact that there are a variety of different ways of expressing past, present, and future time in English, and these different methods interact with other factors such as progressive and perfective aspect. We will not delve into these details here.

A generalization can be made about the behaviour of all deictic terms in reported speech. In reported speech, deictic terms occurring in the original utterance (the utterance being reported) may be translated into other, possibly non-deictic, terms in order to preserve the original reference.

Example

John: "I'll meet you here tomorrow."

Margaret (reporting John's utterance some time later): "John said he would meet me there the next day."

In this example, five adjustments are made in the reported speech, namely:

I → he, 'll (= will) → would, you → me, here → there, tomorrow → the next day

Practice

Use an utterance of your own to report each of the following utterances from a vantage point distant in time and space, changing all the deictic terms to preserve the correct relationships with the situation of the original utterance. Assume that John was speaking to you in each case.

(1) John: "I don't live in this house any more"

---

(2) John: "I need your help right now"

---

(3) John: "Why wouldn't you come to London with me yesterday?"

Feedback (1) "John said that he didn't live in that house any more" (2) "John said that he needed my help right then" (3) "John asked why I wouldn't go to London with him the day before"

Comment These changes in reported speech arise by the very nature of deictic terms. Since deictic terms take (some of) their meaning from the situation of utterance, an utterance reporting an utterance in a different situation cannot always faithfully use the deictic terms of the original utterance.

The function of deixis in language can be better understood by asking the question, "Could there be a language without deixis, i.e. without any deictic expressions?" Let us consider this question by means of some examples.

Practice Imagine a language, called Zonglish, exactly like English in all respects, except that it contains no deictic terms at all, i.e. all English deictic terms have been eliminated from Zonglish.

(1) Is *I would like a cup of tea* a wellformed Zonglish sentence? *Yes / No*

(2) Given that a Zonglish speaker could not say "I would like a cup of tea", would it be possible for him to inform someone that he would like a cup of tea by saying, "The speaker would like a cup of tea"? *Yes / No*

(3) In a language like Zonglish, with no deictic terms, could one rely on one's hearers interpreting "the speaker" when uttered as referring to the utterer? *Yes / No*

(4) Given a speaker of Zonglish named Johan Brzown, and given that no other individual is named Johan Brzown, could he inform someone that he wanted a cup of tea by uttering "Johan Brzown want a cup of tea"? *Yes / No*

(5) Ignoring the problem that tense is a deictic category, could Johan Brzown inform anyone of any fact about himself if his hearer does not happen to know his name? *Yes / No*

(6) Assuming that Johan Brzown carries a clearly visible badge announcing his name to all his hearers, how could he make it clear to his hearer that he wants a cup of tea at the time of utterance, not earlier, and not later?

---

(7) If Johan Brzown wants a cup of tea at 5.30 pm on November 9th 1981, could he inform his hearer of this by uttering, "Johan Brzown want a cup of tea at 5.30 pm on November 9th 1981"? *Yes / No*

Feedback (1) No (2) No, see answers to next questions for reasons. (3) No, if "the

speaker" were to be conventionally understood as referring to the utterer of the utterance in which it occurred, it would in effect be a deictic expression, and therefore outlawed in Zonglish. (4) Using the proper name *Johan Brzown* would get over the problem of referring to the speaker. Every speaker of Zonglish would have to use his own name instead of the personal pronoun *I*. But since tense is a deictic category, Johan Brzown still has the problem of informing his hearer that he wants the cup of tea at the time of utterance, not in the past, and not in the future. (5) No (6) By using some non-deictic description of the actual time of the utterance, like, for example, at *5.30 pm on November 9th 1981* (7) Yes, with this utterance, Johan Brzown would be able to get his message across.

Comment

The point about an example like this is to show that there are good reasons for all languages to have deictic terms. A language without such terms could not serve the communicative needs of its users anything like as well as a real human language. (Of course, all real human languages do have deictic terms.) Deictic expressions bring home very clearly that when we consider individual sentences from the point of view of their truth, we cannot in many cases consider them purely abstractly, i.e. simply as strings of words made available by the language system. The truth of a sentence containing a deictic expression can only be considered in relation to some hypothetical situation of utterance.

Practice

(1) Can you tell whether the sentence *You are standing on my toe* is true or false? *Yes / No*

(2) What would you need to know in order to be able to tell whether the sentence just mentioned is true or false?

---

(3) Can one tell whether the sentence *There are lions in Africa*, not considered in relation to any particular time, is true or false? *Yes / No*

Feedback

(1) No (2) You would need to know who said it to whom and whether the hearer was in fact standing on the speaker's toe at the time of utterance. (3) No

Comment

The relationship of the truth of sentences to hypothetical times and situations of utterance is brought out most vividly by deictic terms.

The is traditionally called the definite article, and *a* the indefinite article. But what exactly is definiteness? An answer can be given in terms of several notions already discussed, in particular the notion of referring expression, identifying the referent of a referring expression, and universe of discourse. A new notion is also needed, that of context.

Definition

The CONTEXT of an utterance is a small subpart of the universe of discourse shared by speaker and hearer, and includes facts about the topic

of the conversation in which the utterance occurs, and also facts about the situation in which the conversation itself takes place.

Example

If I meet a stranger on a bus and we begin to talk about the weather (and not about anything else), then facts about the weather (e.g. that it is raining, that it is warmer than yesterday etc.), facts about the bus (e.g. that it is crowded) and also obvious facts about the two speakers (e.g. their sex) are part of the context of utterances in this conversation. Facts not associated with the topic of the conversation or the situation on the bus (e.g. that England won the World Cup in 1966, or that kangaroos live in Australia) are not part of the context of this conversation, even though they may happen to be known to both speakers.

Comment

The exact context of any utterance can never be specified with complete certainty. The notion of context is very flexible (even somewhat vague). Note that facts about times and places very distant from the time and place of the utterance itself can be part of the context of that utterance, if the topic of conversation happens to be about these distant times and places. Thus, for example, facts about certain people in Egypt could well be part of the context of a conversation in Britain five years later.

Practice

According to the definition of context,

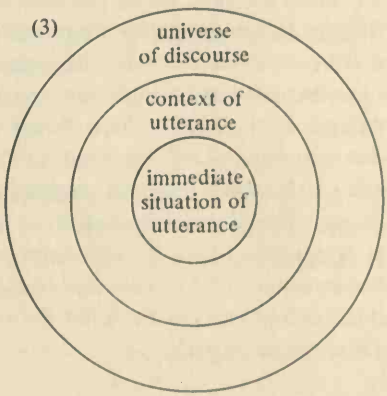
(1) Is the context of an utterance a part of the universe of discourse? *Yes / No*

(2) Is the immediate situation of an utterance a part of its context? *Yes / No*

(3) Draw a diagram with three circles and label the circles 'universe of discourse', 'context of utterance', and 'immediate situation of utterance' in such a way as to indicate what is included in what.

Feedback

(1) Yes (2) Yes (3)



Comment Now we relate the notion of context to the notion of definiteness.

Rule If some entity (or entities) (i.e. person(s), object(s), place(s) etc.) is/are the ONLY entity (or entities) of its/their kind in the context of an utterance, then the definite article (*the*) is the appropriate article to use in referring to that entity (or those entities).

Practice If I carry on a conversation with a friend about the time, five years earlier, when we first met in Egypt (and we are now holding the conversation in the garden of my house in Britain):

(1) Which of the following two utterances would be more appropriate? Circle your answer.
   (a) "Do you remember when we met at the university?"
   (b) "Do you remember when we met at a university?"

(2) Which of the following two utterances would be more appropriate?
   (a) "Shall we go into a house now?"
   (b) "Shall we go into the house now?"

(3) In the context we are considering, would it be appropriate to use the referring expression *the elephants* (as far as you can tell from what we have told you about this context)? *Yes / No*

(4) In this context, would it be appropriate to use the referring expression *the printer* (again, as far as you can tell)? *Yes / No*

Feedback (1) (a) (2) (b) (3) No (4) No

Comment The appropriateness of the definite article is dependent on the context in which it is used. The expressions judged inappropriate in the previous practice would be quite appropriate in other contexts. Think of such contexts for practice.

Contexts are constructed continuously during the course of a conversation. As a conversation progresses, items previously unmentioned and not even associated with the topics so far discussed are mentioned for the first time and then become part of the context of the following utterance. Eventually, perhaps, things mentioned a long time previously in the conversation will 'fade out' of the context, but how long it takes for this to happen cannot be specified exactly.

When something is introduced for the first time into a conversation, it is appropriate to use the indefinite article, *a*. Once something is established in the context of the conversation, it is appropriate to use *the*. But the definite article *the* is not the only word which indicates definiteness in English.

Definition

DEFINITENESS is a feature of a noun phrase selected by a speaker to convey his assumption that the hearer will be able to identify the referent of the noun phrase, usually because it is the only thing of its kind in the context of the utterance, or because it is unique in the universe of discourse.

Example

That book is definite. It can only appropriately be used when the speaker assumes the hearer can tell which book is being referred to.

The personal pronoun *she* is definite. It can only appropriately be used when the speaker assumes the hearer can tell which person is being referred to.

The Earth is definite. It is the only thing in a normal universe of discourse known by this name.

Practice

(1) We reproduce below a passage from *Alice in Wonderland*. Pick out by underlining all the expressions which clearly refer to something the reader is supposed to be aware of at the point in the passage where they occur, i.e. all the expressions referring to things which must be assumed to be already present in the context of the passage. You should find 15 such definite expressions altogether.

1 There was a table set out under a tree in front of the house, and the
March Hare and the Hatter were having tea at it; a Dormouse was sitting
3 between them, fast asleep, and the other two were using it as a cushion,
resting their elbows on it, and talking over its head. "Very uncomfort-
5 able for the dormouse", thought Alice; "only, as it's asleep, I suppose it
doesn't mind."

(2) The word *it* occurs 5 times in this passage. To which different things does it refer?

_____

(3) Is there ever any doubt in this passage about the referent of any occurrence of *it*? *Yes / No*

(4) Who does *them* in line 3 refer to?

_____

(5) Four things (or people) referred to by definite referring expressions in this passage must be presumed to be already in the context at the very beginning of the passage, i.e. they are not introduced during the passage. Which are they?

_____

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(6) Two things referred to by definite referring expressions in this passage are actually introduced into the context during the passage. Which are they?

_____

Feedback

(1) line 1, *the house*; line 2, *the March Hare*, *the Hatter*, *it*; line 3, *them*, *the other two*, *it*; line 4, *their elbows*, *it*, *its head*; line 5, *the dormouse*, *Alice*, *it*, *I*, *it*
(2) the table and the dormouse (3) No (4) the March Hare and the Hatter
(5) the house, the March Hare, the Hatter, and Alice (6) the table and the dormouse

Comment

This passage from *Alice in Wonderland* is written in a very simple straightforward narrative style, in which things are introduced into the context by means of indefinite expressions, e.g. *a table*, *a tree*, *a dormouse* and subsequently referred to with definite expressions, e.g. *it*, *the dormouse*. This kind of structure is actually only found in the simplest style. More often, authors begin a narrative using a number of definite referring expressions. This stylistic device has the effect of drawing the reader into the narrative fast, by giving the impression that the writer and the reader already share a number of contextual assumptions. We give an example in the next exercise.

Practice

Given below are the opening sentences of John Fowles' novel *The Collector*.

When she was home from her boarding-school I used to see her almost every day sometimes, because their house was right opposite the Town Hall Annexe. She and her younger sister used to go in and out a lot, often with young men, which of course I didn't like. When I had a free moment from the files and ledgers I stood by the window and used to look down over the road over the frosting and sometimes I'd see her.

(1) Is the reader given any idea who 'she' is before she is introduced? *Yes / No*
(2) Does the mention of 'their house' give the impression that 'they' are in some way already known to the reader? *Yes / No*
(3) Does mention of 'the files and ledgers' give the impression that the reader should know which files and ledgers are being referred to, or at least give the impression that the reader should know more about them than just that they are files and ledgers? *Yes / No*
(4) In normal conversation, if a person was recounting some story, would he usually begin a narrative using *she* without indicating in advance who he was talking about? *Yes / No*

(5) Is the use of definite referring expressions in the above passage different from conventional usage in the opening stages of everyday conversations? *Yes / No*

Feedback (1) No (2) Yes (3) Yes (4) No (5) Yes

Comment

Novelists typically use definiteness in strikingly abnormal ways in the opening passages of novels – 'abnormal', that is, from the point of view of everyday conversation.

The three main types of definite noun phrase in English are (1) Proper names, e.g. *John*, *Queen Victoria*, (2) personal pronouns, e.g. *he*, *she*, *it*, and (3) phrases introduced by a definite determiner, such as *the*, *that*, *this* (e.g. *the table*, *this book*, *those men*). By contrast, expressions like *a man*, *someone*, and *one* are all indefinite.

It follows from our definition of definiteness (p. 71) that all definite noun phrases are referring expressions. But you must be careful not to assume that every noun phrase using the so-called 'definite article' *the* is necessarily semantically definite. In generic sentences (Unit 6) for example, and in other cases, one can find a phrase beginning with *the* where the hearer cannot be expected to identify the referent, often because there is in fact no referent, the expression not being a referring expression.

Practice

(1) In the sentence *The whale is a mammal*, as most typically used, which particular whale is being referred to?

---

(2) Is *the whale* in the sentence just mentioned a referring expression? *Yes / No*

(3) Is the phrase *the whale* semantically definite in the sentence mentioned (i.e. would a user of this sentence presume that the hearer would be able to identify the referent of the expression)? *Yes / No*

(4) Take the utterance "If anyone makes too much noise, you have my permission to strangle him". On hearing this, could the hearer be expected to identify the referent of *him*? *Yes / No*

(5) In the utterance just mentioned, is *him* semantically definite? *Yes / No*

(6) Which particular donkey does *it* refer to in *Every man who owns a donkey beats it*?

---

(7) Is *it* in *Every man who owns a donkey beats it* semantically definite? *Yes / No*

Feedback (1) none at all (2) No (3) No, because there is in fact no referent. (4) No (5) No (6) No particular donkey (7) No

Comment Finally, we consider the question of truth in relation to definiteness. Does definiteness contribute in any way to the truth or falsehood of a sentence considered in relation to a given situation? We will compare the effects of the definite and indefinite articles *the* and *a* with referring expressions.

Practice I am working in the garden, and accidentally stick a fork through my foot. I tell my wife, who knows I have been gardening and knows the fork I have been working with.

(1) Which would be the more appropriate utterance (to my wife) in this situation, (a) or (b)?
(a) "I've just stuck the fork through my foot"
(b) "I've just stuck a fork through my foot" _____

(2) I telephone the doctor, to tell him of the accident. The doctor knows nothing about my gardening tools. Which of the two utterances just mentioned would it be more appropriate to use? _____

(3) In the situation envisaged, do the two utterances mentioned both describe exactly the same state of affairs? *Yes / No*

Feedback (1) (a) (2) (b) (3) Yes

Summary Deictic expressions are those which take some element of their meaning directly from the immediate situation of the utterance in which they are used (e.g. from the speaker, the hearer, the time and place of the utterance). Examples of deictic words are *I*, *you*, *here*, *now*, *come*. The availability of such expressions makes language a much more 'portable' instrument than it would otherwise be: we can use the same words on different occasions, at different times and places.

Definite and indefinite referring expressions may be more or less appropriate in different contexts. But utterances which differ only in that one contains a definite referring expression where the other has an indefinite referring expression (provided these expressions have the same referent) do not differ in truth value. Considered objectively, the referent of a referring expression (e.g. *a* / *the fork*) is in itself neither definite nor indefinite. (Can you tell from close inspection of a fork

whether it is a 'definite' or an 'indefinite' fork?) The definiteness of a referring expression tells us nothing about the referent itself, but rather relates to the question of whether the referent has been mentioned (or taken for granted) in the preceding discourse. The definiteness of a referring expression gives the hearer a clue in identifying its referent.

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UNIT 8
WORDS AND THINGS: EXTENSIONS AND PROTOTYPES

Entry requirements

SENSE and REFERENCE (Unit 3), PREDICATE (Unit 5), IDENTIFYING the REFERENT of a REFERRING EXPRESSION and UNIVERSE of DISCOURSE (Unit 6). If you feel you understand these notions, take the entry test below. If not, review the relevant unit(s).

Entry test

(1) Which of the following most appropriately describes reference? Circle your preference.
   (a) Reference is a relationship between sentences and the world.
   (b) Reference is a relationship between certain uttered expressions and things in the world.
   (c) Reference is a relationship between certain uttered expressions and certain things outside the context of the utterance.

(2) Which of the following is a correct statement about sense?
   (a) All words in a language may be used to refer, but only some words have sense.
   (b) If two expressions have the same reference, they always have the same sense.
   (c) The sense of an expression is its relationship to semantically equivalent or semantically related expressions in the same language.

(3) How do hearers identify the referent of a referring expression (other than a proper name) –
   (a) by seeking in the context of the utterance some object to which the predicates in the referring expression apply?
   (b) by sharing with the speaker a conventional system according to which each possible referring expression has a single agreed referent?
   (c) by telepathy – reading the speaker's mind?

(4) Which of the following words are predicates? Circle your choices.
Henry, square, expensive, and, under, not, love

(5) Which of the following is correct?
   (a) The universe of discourse is a part of the context of an utterance.
   (b) The context of an utterance is a part of the universe of discourse.
   (c) The universe of discourse is the whole real world.

Feedback

(1) (b) (2) (c) (3) (a) (4) *square, expensive, under, love* (5) (b)

If you have scored at least 4 out of 5 correct, continue to the introduction. Otherwise review the relevant unit.

Introduction

We have outlined the basic distinction between sense and reference (Unit 3) and explored details of the use of reference (Units 4–7). In subsequent units, (9–11) we will develop the idea of sense in similar detail. The present unit will act as a bridge between the preceding units on reference and the following units on sense, introducing several notions, including extension and prototype, which in certain ways bridge the conceptual and theoretical gap between sense and reference.

To show what we mean when we talk of a 'gap' between reference and sense, we look first at the question of how much a knowledge of the reference of referring expressions actually helps a speaker in producing and understanding utterances which describe the world he lives in.

Practice

(1) In the case of expressions with constant reference, such as *the Sun* or *the Moon*, could a speaker be said to know what they refer to simply by having memorized a permanent connection in his mind between each expression and its referent? *Yes / No*

(2) In the case of expressions with variable reference, such as *the man* or the *middle of the road*, could a speaker be said to know what they refer to by having memorized a permanent connection in his mind between each expression and its referent? *Yes / No*

(3) How, in a given situation, would you know that in saying "the cat" I was not referring to a man sitting in an armchair, or to a book in his hand, or to the clock on the mantelpiece? (Remember, from your answer to question (2), that it cannot be because you have memorized a connection between the expression *the cat* and some particular object, a cat, in the world.)

the cat refers to a cat

(4) Might it seem reasonable to say, in the case of a referring expression with variable reference, such as *the cat*, that a speaker has memorized a connection between the expression and a set, or type, of the expression's potential referents? *Yes / No*

(5) How many potential referents are there for the expression *the cat*?

as many as there are cats in the world

Feedback (1) Yes (2) No, because for such expressions there is no single referent with which the speaker could establish a permanent connection in his mind. (3) Because you know that the expression *the cat* can only refer to a cat, and not to anything which is not a cat, and you know that men, books, and clocks are not cats. (4) Yes (5) As many as there are (or have been, or will be) cats in the world – certainly a very large number.

Comment The point that we are spelling out here is that someone who knows how to use the word *cat* has an idea of the potential set of objects that can be referred to as cats, i.e. he has some concept of the set of all cats. (This idea or concept may only be a vague, or fuzzy, one, but we will come back to that point later.) This leads us to the notion of the extension of a predicate.

Definition (partial) The EXTENSION of a one-place predicate is the set of all individuals to which that predicate can truthfully be applied. It is the set of things which can POTENTIALLY be referred to by using an expression whose main element is that predicate.

Example The extension of *window* is the set of all windows in the universe.

The extension of *dog* is the set of all dogs in the universe.

The extension of *house* is the set of all houses.

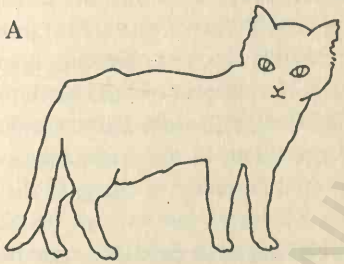
The extension of *red* is the set of all red things.

Comment In the case of most frequent common nouns, at least, an extension is a set of physical objects. Thus, extension contrasts with sense, since a sense is not a set of anything. And extension contrasts with referent, since a referent is normally an individual thing, not a set of things. Beside these contrasts, the notion of extension has similarities to that of sense, on the one hand, and to that of reference, on the other. Extension is like sense, and unlike reference, in that it is independent of any particular occasion of utterance. Speakers refer to referents on particular occasions, but words which have sense and extension have them 'timelessly'. On the other hand, extension is like reference and unlike sense, in that it connects a linguistic unit, such as a word or expression, to something non-linguistic (i.e. outside language) be it a set of physical objects or an individual physical object, or a set of abstract entities (e.g. songs, distances) or an individual abstract object (e.g. a particular song, a specific distance).

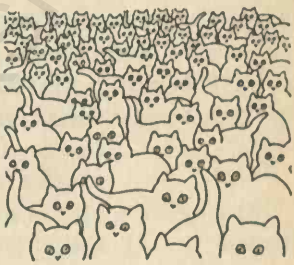
Practice (1) In the light of the above comment, fill in the chart with '+' and '–' signs to indicate the differences and similarities between these three concepts.

	Sense	Extension	Reference
Involves a set	—	+	—
Independent of particular occasions or utterance	+	+	—
Connects language to the world	—	+	+

(2) A



B



Which of the two pictures would more informatively be captioned: 'part of the extension of the word *cat*'? *A / B*

(3) Might the other picture appropriately be captioned: 'the referent of "Jaime Lass' present eldest cat", uttered on January 1st 1983'? (Assume that there is someone named Jaime Lass who owned cats at that time.) *Yes / No*

(4) Could the expression *her cat*, uttered on different occasions with different topics of conversation, have a number of different referents? *Yes / No*

(5) Would each object (each separate animal, that is) referred to by the expression *her cat* on separate occasions belong to the extension of the word *cat*? *Yes / No*

(6) Could both pictures actually be labelled: 'part of the extension of the word *cat*' (though to do so might not immediately clarify the notions involved)? *Yes / No*

Feedback

(1) — + —
+ + —
— + +

(2) B (3) Yes (4) Yes (5) Yes (6) Yes, since any individual cat belongs to the set of all cats.

Comment

The notions of reference and extension are clearly related, and are

jointly opposed to the notion of sense. The relationship usually envisaged between sense, extension, and reference can be summarized thus:

1. A speaker's knowledge of the sense of a predicate provides him with an idea of its extension. For example, the 'dictionary definition' which the speaker accepts for *cat* can be used to decide what is a cat, and what is not, thus defining implicitly the set of all cats.
2. The referent of a referring expression used in a particular utterance is an individual member of the extension of the predicate used in the expression; the context of the utterance usually helps the hearer to identify which particular member it is. For example, if any English speaker, in any situation, hears the utterance "The cat's stolen your pork chop", he will think that some member of the set of cats has stolen his pork chop, and if, furthermore, the context of the utterance is his own household, which has just one cat, named *Atkins*, he will identify Atkins as the referent of "the cat".

Now we will consider further the idea that a speaker of a language in some sense knows the extensions of the predicates in that language, and uses this knowledge to refer correctly to things in the world.

Practice

(1) The cat I had as a child is long since dead and cremated, so that that particular cat now no longer exists. Is it possible to refer in conversation to the cat I had as a child? *Yes / No*

(2) Does it follow that the extension of the predicate *cat* includes the cat I had as a child, which now no longer exists? *Yes / No*

(3) New cats are coming into existence all the time. Does it seem reasonable to say that a speaker is continually updating his idea of the set of all cats, to include the newcomers? *Yes / No*

(4) Or does it seem more reasonable to define extensions in such a way as to include objects in the future, as well as in the present and the past? *Yes / No*

(5) Is it possible to refer to the cat which you may own one day in the distant future, a cat which does not yet exist? *Yes / No*

Feedback (1) Yes (2) Yes (3) No (4) Yes (5) Yes

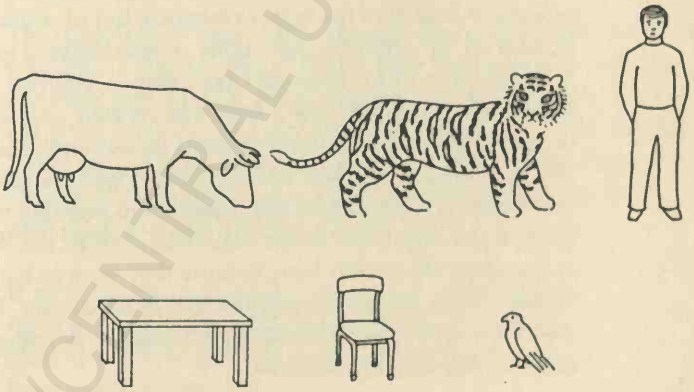
Comment Since clearly one can refer to things which no longer exist and to things which do not yet exist, and since the notion of the extension of a predicate is defined as a set of potential referents, we are forced to postulate that extensions are relative to all times, past, present and

future. Thus, the extension of *window*, for example, includes all past windows, all present windows, and all future windows. Similarly the extension of *dead* includes all things which have been dead in the past (and presumably still are, if they still exist), which are dead now, and which will be dead in the future. Predicates are tenseless, i.e. unspecified for past, present, or future.

In actual use, predicates are almost always accompanied in sentences by a marker of tense (past or present) or a future marker, such as *will*. These have the effect of restricting the extensions of the predicates they modify, so that, for example, the extension of the phrase *is dead* could be said to be the set of all things which are dead at the time of utterance. Correspondingly, the extension of the phrase *is alive* could be said to be the set of all things alive at the time of utterance. Thus the extensions of *is dead* and *is alive* are different in the appropriate way at any particular time of utterance. This restricting of the extensions of predicates is an example of a more general fact. The extension of a combination of several predicates is the intersection of their respective extensions.

Practice

Study the drawing. Imagine a very impoverished little universe of discourse containing only the objects depicted.



Practice

Assuming that the predicates *two-legged*, *four-legged*, *striped*, *mammal*, *creature*, etc. have their normal English meanings, draw circles on the drawing as follows:

(1) Enclosing all four-legged things, and nothing else (i.e. the extension, in this little universe, of the predicate *four-legged*)
(2) Enclosing the extension of the predicate *creature*
(3) Enclosing the extension of *mammal*
(4) Enclosing the extension of *two-legged*

(5) Did the intersection of the first two circles you drew enclose just the set of four-legged creatures? *Yes / No*

(6) Did the intersection of the last two circles you drew enclose just the set of two-legged mammals? *Yes / No*

(7) In this little universe, is the extension of *non-human mammal* identical to that of *four-legged creature*? *Yes / No*

(8) In this little universe, does the extension of the expression *striped human* have any members at all? *Yes / No*

Feedback

(1) The circle encloses the table, the chair, the cow, and the tiger. (2) It encloses the man, the bird, the cow, and the tiger. (3) It encloses the man, the cow, and the tiger. (4) It encloses the man and the bird. (5) Yes (6) Yes (7) Yes (8) No, the extension of *striped human* has no members. It is technically called 'the null (or empty) set'. Logicians allow themselves to talk of a set with no members.

Comment

It has tempted some philosophers to try to equate the meaning of a predicate, or combination of predicates, simply with its extension, but this suggestion will not work. Classic counterexamples include the pairs *featherless biped* vs. *rational animal*, and *creature with a heart* vs. *creature with a kidney*. The only featherless bipeds, so it happens apparently, are human beings, and if we assume that human beings are also the only rational animals, then the phrases *featherless biped* and *rational animal* have the same extensions, but of course these two phrases do not mean the same thing. It also happens to be the case that every creature with a heart also has a kidney, and vice versa, so that the extensions of *creature with a heart* and *creature with a kidney* are identical, but again, these two phrases do not mean the same thing. Philosophers and logicians who have developed the idea of extension have been very resourceful and ingenious in adapting the idea to meet some of the difficulties which have been pointed out. We will not discuss such developments here, because they seem to carry to an extreme degree a basic flaw in the essential idea of extensions. This flaw can be described as the undecidability of extensions. We bring out what we mean by this in practice below.

Practice

We will try to solve the well-known 'chicken-and-egg' problem. To do so we make the following assumptions: (a) the only kind of egg that a chicken can lay is a chicken's egg, and (b) the only thing that can hatch from a chicken's egg is a (young) chicken.

(1) Do the assumptions given allow the following as a possibility? The first chicken's egg, from which all subsequent chickens are descended, was laid by a bird which was not itself a chicken, although an ancestor of all chickens. *Yes / No*

(2) Do our initial assumptions allow the following as a possibility? The first chicken was hatched from an egg that was not a chicken's egg. *Yes / No*

(3) Now imagine that, miraculously, a complete fossil record was available of all the birds and eggs in the ancestry of some modern chicken, going back to clear examples of non-chickens and non-chickens' eggs. Would it be possible, by careful inspection of this sequence of eggs and birds, to solve the chicken-and-egg problem empirically by pointing either to something that was clearly the first chicken, or alternatively to something that was clearly the first chicken's egg? *Yes / No*

(4) Try to explain the reasons for your answer to question (3).

Feedback

(1) Yes (2) Yes (3) No (4) Evolution proceeds in such minute stages that one has the impression of a continuum. We do not have a clear enough idea of what is and what is not a chicken (or a chicken's egg) to be able to tell with any certainty which one in a long line of very subtly changing objects is the 'first' chicken('s egg).

Comment

The point is that even people who can reasonably claim to know the meaning of *chicken* cannot draw a clear line around the set of all chickens, past, present and future, separating them from all the non-chickens. In short, the extension of chicken is not a clear set. It is a 'fuzzy set', and fuzziness is far from the spirit of the original idea of extensions. This fuzziness is a problem which besets almost all predicates, not only *chicken* and *egg*.

Practice

(1) If all the ancestors of some modern cat, going back as far as pre-cats, were available for inspection, do you think it would be possible to tell clearly which one of them was 'the first cat'? *Yes / No*

(2) Is the extension of *cat* a clearly defined set? *Yes / No*

(3) Can you imagine finding some creature in the woods and, despite thorough inspection, not being able to decide whether it should be called a 'cat' or not? *Yes / No*

(4) Is the 'present extension' of *cat* (what we have called the extension of *is a cat*) a clearly defined set? *Yes / No*

(5) Could a potter make some object which was halfway between a cup and a mug? If so, what would you call it?

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(6) Could a whimsical carpenter make an object that was halfway between a table and a chair? If so, what would you call such an object?

Feedback (1) No (2) No (3) Yes, this situation is imaginable. (4) No (5) Yes; it would be hard to know whether to call it a cup or a mug. (6) Yes; it would be hard to know whether to call it a chair or a table.

Comment In practice, certain kinds of predicates present more difficulties than others. It is unusual, in everyday situations, for there to be much problem in applying the predicates *cat*, or *chicken*. Cats and chickens are natural kinds, which the world obligingly sorts out into relatively clear groups for us. But in the case of some other kinds of predicates, it is obvious that everyday language does not put well-defined boundaries around their extensions.

Practice

(1) Have you ever argued with another English speaker about whether or not to call some object blue? *Yes / No*

(2) Have you ever been in doubt yourself, as an individual, about whether to call something pink or orange? *Yes / No*

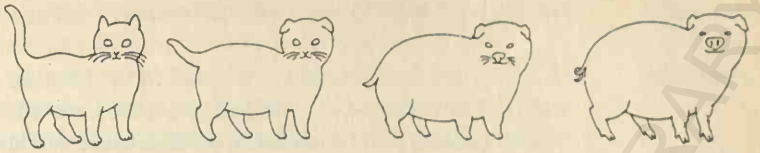
(3) Have you ever been in doubt about whether to call something a tree or a shrub? *Yes / No*

(4) Is there a clear difference for you between what can be called a book and what can be called a pamphlet? *Yes / No*

(5) Is there a clear difference between what can be called paper and what can be called card? *Yes / No*

Feedback (1) Yes, probably (2) Yes, probably (3) Yes, probably (4) No, probably not (5) No, probably not

Comment The original motivation for the idea of extension was to explain the ability of speakers of a language to refer to objects in the world, using expressions containing predicates, their ability as hearers to identify the referents of referring expressions containing predicates, and their ability to make and understand descriptive statements using predicates, as in *Atkins is a cat*. But speakers are in fact only able to do these things in normal situations. The idea of extension is too ambitious, extending to all situations. In fact, a speaker does not have a perfectly clear idea of what is a cat and what is not a cat. Between obvious cats and obvious non-cats there is a grey area of doubt.



In order to get around such difficulties with the idea of extension, semanticists have introduced the two closely related notions of prototype and stereotype.

Definition

A PROTOTYPE of a predicate is an object which is held to be very TYPICAL of the kind of object which can be referred to by an expression containing the predicate.

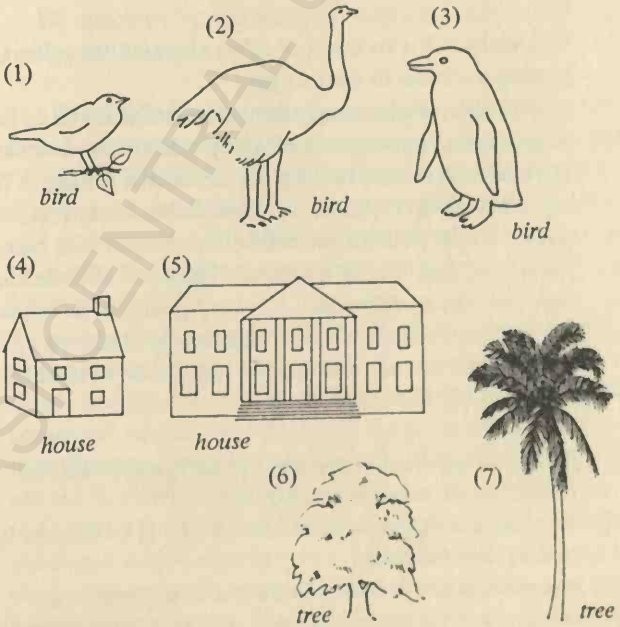
Example

A man of medium height and average build, between 30 and 50 years old, with brownish hair, with no particularly distinctive characteristics or defects could be a prototype of the predicate *man* in certain areas of the world.

A dwarf or a hugely muscular body-builder could not be a prototype of the predicate *man*.

Practice

For each of the drawings (1)–(7), say whether the object shown could be a prototype of the predicate given below it.



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Feedback (1) Yes (2) No (3) No (4) Yes (5) No (6) Yes (7) No

Comment Since we are not especially interested in the language of any one individual, but rather in, say, English as a whole, we will talk in terms of shared prototypes, i.e. objects on which there would be general agreement that they were typical examples of the class of objects described by a certain predicate. In a language community as wide as that of English, there are problems with this idea of prototype, due to cultural differences between various English-speaking communities.

Practice

(1) Could a double-decker bus (of the kind found in British cities) be a prototype for the predicate *bus* for a British English-speaker? *Yes / No*

(2) Could such a bus be a prototype for the predicate *bus* for an American English-speaker? *Yes / No*

(3) Could a skyscraper be a prototype for the predicate *building* for an inhabitant of New York City? *Yes / No*

(4) Could a skyscraper be a prototype for the predicate *building* for someone who had spent his life in Britain (outside London)? *Yes / No*

Feedback (1) Yes (2) No (3) Yes (4) No

Comment You will be able to think of other examples of cultural differences leading to different prototypes.

The idea of a prototype is perhaps most useful in explaining how people learn to use (some of) the predicates in their language correctly. Predicates like *man*, *cat*, *dog* are often first taught to toddlers by pointing out to them typical examples of men, cats, dogs, etc. A mother may point to a cat and tell her child "That's a cat", or point to the child's father and say "Daddy's a man". This kind of definition by pointing is called ostensive definition. It is very plausible to believe that a child's first concepts of many concrete terms are induced by ostensive definition involving a prototype. Obviously, however, not all concepts can be learned in this way.

Practice

(1) Could the predicate *bottle* be defined ostensively, by pointing to a prototypical bottle? *Yes / No*

(2) Is it likely that the predicate *battle* would be learned by ostensive definition? *Yes / No*

(3) Are predicates for various external body-parts, e.g. *chin*, *nose*, *eye*, *leg*, *elbow* most probably first learned from ostensive definitions? *Yes / No*

(4) Are colour predicates, such as *red*, *blue*, *green*, *yellow* probably first learned from ostensive definitions? *Yes / No*

(5) Could the meaning of *ambition* be learned from a simple ostensive definition (i.e. by someone pointing to an ambitious man and saying "That's ambition" or even "He's an ambitious man")? *Yes / No*

(6) Could the meaning of *electricity* be defined ostensively? *Yes / No*

Feedback

(1) Yes (2) No, although one might just possibly learn the meaning of *battle* from being shown a battle in a movie. (3) Yes (4) Yes (5) No, someone who doesn't know the meaning of *ambition* couldn't identify the relevant quality just by being shown an ambitious man. (6) No

Comment

Some predicates which do not have clearly defined extensions (e.g. colour terms like *red* and *blue*) do in fact have clear prototypes. Although one cannot be sure exactly where red shades off into pink or orange, there is general agreement in the English speech community about the central, focal, or prototypical examples of red. Thus the idea of prototype has at least some advantage over that of extension. But in other cases, such as abstract mass terms (e.g. *ambition*) there is about as much difficulty in identifying the prototype of a predicate as there is of identifying its extension.

We conclude by repeating definitions of referent, extension, and prototype below.

Definition

The REFERENT of a referring expression is the thing picked out by the use of that expression on a particular occasion of utterance.

The EXTENSION of a predicate is the complete set of all things which could potentially (i.e. in any possible utterance) be the referent of a referring expression whose head constituent is that predicate.

A PROTOTYPE of a predicate is a typical member of its extension.

Comment

We make a distinction between prototype and stereotype: we will define stereotype in the next unit. In other texts, the two terms are often used interchangeably. A further term, which we will have an occasional use for, is 'denotation'. In many cases denotation can be thought of as equivalent to extension. Thus, for example, the predicate *cat* can be said to denote the set of all cats. But often the term is used in a wider, essentially vaguer, sense, especially in connection with predicates whose extensions are problematical. Thus one may find statements about meaning such as '*redness* denotes the property common to all red things', or, '*ambition* denotes a human quality', or 'the preposition *under* denotes a spatial relationship'.

Summary Reference, extension, and prototype all focus attention on the relationship between words and things. Clearly, language does not exist in a vacuum. It is used to make statements about the world outside, and these three notions are useful in an analysis of exactly how the relationship between language and the world works.

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3 ...to sense

UNIT 9
SENSE PROPERTIES AND STEREOTYPES

Entry requirements

ONE-, TWO- and THREE-PLACE PREDICATES (Unit 5), EXTENSION and PROTOTYPE (Unit 8). If you feel unfamiliar with any of these ideas, review the appropriate unit. Otherwise, take the entry test below.

Entry test

(1) Which of the following are two-place predicates? Circle your answer.
below, *smother*, *sleep*, *come*, *annihilate*, *vanish*, *afraid (of)*

(2) Write the terms 'referent', 'extension', and 'prototype' in the appropriate boxes in the chart below:

(Thing referred to on a particular occasion of utterance) Referent	(Set of things that could be referred to using a particular predicate) Extension
	(Thing typically referred to using a particular predicate) Prototype

Feedback

(1) *below*, *smother*, *annihilate*, *afraid of* (2) Referent | Extension / Prototype

Instruction

If you have answered both questions correctly continue to the introduction. Otherwise review the relevant unit.

Introduction

It is sometimes hard to distinguish a factual (or 'ontological') question from a semantic one.

Practice

(1) Have you ever been asked an apparently factual question about something (call it 'X'), and found it necessary to say to your questioner "Well, it depends on what you mean by X"? *Yes / No*

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(2) Have you ever been involved in an argument with someone over an apparently factual matter, only to discover that some particularly crucial word in the argument had a different meaning for the other person? *Yes / No*

(3) In a case where someone says, "Well, it depends what you mean by X", is it often possible, once the meaning of X has been agreed by both parties, for the original factual question to be answered straightforwardly? *Yes / No*

(4) If two people can be said to agree on the meanings of all the words they use, must any remaining disagreements between them be regarded as disagreements about matters of fact? *Yes / No*

(5) If we could not agree about the meanings of any of the words we use, could any disagreement about matters of fact even be formulated, let alone resolved? *Yes / No*

Feedback (1) Probably, almost everyone has been in this situation. (2) again, probably Yes (3) Yes (4) Yes (5) No

Comment In order to be able to talk meaningfully about anything, it is necessary to agree on the meanings of the words involved. This is a truism. In everyday life, people reach practical agreement on the meanings of almost all the words they use, and effective and successful communication takes place as a result. If a person wants to hinder or obstruct communication, he can begin to quibble over the meanings of everyday words. Although there may be disagreement about the fine details of the meanings of words 'around the edges', we find in the everyday use of language that all words are understood by speakers as having an indispensable hard core of meaning.

Practice Given below are three conversations which get stuck. In each one, speaker B seems to ignore some particular convention about the meaning of one of the words involved, a convention universally accepted in everyday English. For each conversation, write out a statement about the meaning of the word concerned, a statement that speaker B seems not to accept.

(1) A: "I saw something strange in the garden this morning."
B: "Oh! What was it?"
A: "An animal perched on top of the clothes pole."
B: "How do you know it was an animal?"
A: "I saw it. It was a cat."
B: "You might have seen a cat, but how can you be sure it was an animal?"
A: "Well, of course it was an animal, if it was a cat."

B: "I don't see how that follows."

---

(2) B: "My neighbour's child is an adult."
A: "You mean he was a child and is now grown up?"
B: "No. He is still a child, even though he's an adult."
A: "You mean that he's a child who acts in a very grown up way?"
B: "No. He's just an adult child, that's all."

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(3) B: "I finally killed Ben's parrot."
A: "So it's dead, then?"
B: "No, I didn't say that. Just that I killed it."
A: "But if you killed it, it must be dead."
B: "No. I was quite careful about it. I killed it very carefully so it's not dead."

Feedback

(1) The meaning of *cat* includes that of *animal*. (2) The meaning of *adult* excludes the meaning of *child*. (3) The meaning of *kill* is related to that of *dead* in such a way that anything killed is necessarily dead.

Comment

The kind of meaning we are talking about here is obviously the kind associated with words and sentences by the language system, and not the speaker meaning (see Unit 1) specifically associated with utterances made by speakers on particular occasions. This kind of meaning we call sense.

Definition (partial: see also Unit 3)

The SENSE of an expression is its indispensable hard core of meaning.

Comment

This definition deliberately excludes any influence of context or situation of utterance on the senses of expressions. (Thus it is problematic to talk of the senses of deictic words (Unit 7), but we will not go into that problem here.)

The sense of an expression can be thought of as the sum of its sense properties and sense relations with other expressions. For the moment, we will concentrate on three important sense properties of sentences, the properties of being analytic, of being synthetic, and of being contradictory.

Definition

An ANALYTIC sentence is one that is necessarily TRUE, as a result of

the senses of the words in it. An analytic sentence, therefore, reflects a tacit agreement by speakers of the language about the senses of the words in it.

A SYNTHETIC sentence is one which is NOT analytic, but may be either true or false, depending on the way the world is.

Example

Analytic: *All elephants are animals*
The truth of the sentence follows from the senses of *elephant* and *animal.*
Synthetic: *John is from Ireland*
There is nothing in the senses of *John* or *Ireland* or *from* which makes this necessarily true or false.

Practice

(1) Label the following sentences either T for true, F for false, or D for don't know, as appropriate.

(a) *Cats are animals* T / F / D
(b) *Bachelors are unmarried* T / F / D
(c) *Cats never live more than 20 years* T / F / D
(d) *Bachelors cannot form lasting relationships* T / F / D
(e) *Cats are not vegetables* T / F / D
(f) *Bachelors are male* T / F / D
(g) *No cat likes to bathe* T / F / D
(h) *Bachelors are lonely* T / F / D

(2) Were you able to assign T or F to all the above sentences? *Yes / No*

(3) Which of the above sentences do you think ANY speaker of English could assign T or F to?

---

(4) Which of the sentences in (a)–(h) above would you say are true by virtue of the senses of the words in them?

---

(5) Which of the sentences above would you say might be true or false as a matter of fact about the world?

Feedback

(1) (a) T (b) T (c)–(d) Actually we, the authors, don't know the answers for these sentences. (e) T (f) T (g)–(h) We don't know the answers for these, either.
(2) Perhaps you were; we weren't. (3) (a), (b), (e), (f) (4) (a), (b), (e), (f) (5) (c), (d), (g), (h)

Comment

Sentences (a), (b), (e), (f) are analytic. Sentences (c), (d), (g), (h) are synthetic.

Practice

Here are some more sentences. Circle A for analytic, or S for synthetic, as appropriate. For some, you will have to imagine relevant situations.

(1) *John's brother is nine years old* A / S
(2) *John's nine-year-old brother is a boy* A / S
(3) *Sam's wife is married* A / S
(4) *Sam's wife is not German* A / S
(5) *My watch is slow* A / S
(6) *My watch is a device for telling the time* A / S

Feedback

(1) S (2) A (3) A (4) S (5) S (6) A

Comment

Analytic sentences are always true (necessarily so, by virtue of the senses of the words in them), whereas synthetic sentences can be sometimes true, sometimes false, depending on the circumstances. We now come to contradiction.

Definition

A CONTRADICTION is a sentence that is necessarily FALSE, as a result of the senses of the words in it. Thus a contradiction is in a way the opposite of an analytic sentence.

Example

This animal is a vegetable is a contradiction.
This must be false because of the senses of *animal* and *vegetable.*
Both of John's parents are married to aunts of mine is a contradiction.
This must be false because of the senses of *both parents*, *married* and *aunt.*

Practice

Circle the following sentences A for analytic, S for synthetic or C for contradiction, as appropriate. For some you will have to imagine relevant situations.

(1) *That girl is her own mother's mother* A / S / C
(2) *The boy is his own father's son* A / S / C
(3) *Alice is Ken's sister* A / S / C
(4) *Some typewriters are dusty* A / S / C
(5) *If it breaks, it breaks* A / S / C
(6) *John killed Bill, who remained alive for many years after* A / S / C

Feedback

(1) C (2) A (3) S (4) S (5) A (6) C

Comment

Analytic sentences can be formed from contradictions, and vice versa, by the insertion or removal, as appropriate, of the negative particle word *not.*

We pay no attention here to the figurative use of both analytic sen-

tences and contradictions. Taken literally, the sentence *That man is not a human being* is a contradiction. This very fact is what gives it its power to communicate a strong emotional judgement (stronger than, say, the synthetic *That man is very cruel*).

We will now mention a limitation of the notions analytic, synthetic and contradiction. Remember that these notions are defined in terms of truth. Imperative and interrogative sentences cannot be true or false, and so they cannot be analytic (because they cannot be true), or synthetic, because 'synthetic' only makes sense in contrast to the notion 'analytic'.

You will have noticed that synthetic sentences are potentially informative in real-world situations, whereas analytic sentences and contradictions are not informative to anyone who already knows the meaning of the words in them. It might be thought that the fact that semanticists concentrate attention on unusual sentences, such as analytic ones and contradictions, reflects a lack of interest in ordinary, everyday language. Quite the contrary! Semanticists are interested in the foundations of everyday communication. People can only communicate meaningfully about everyday matters, using informative synthetic sentences, because (or to the extent that) they agree on the meanings of the words in them. This basic agreement on meaning is reflected in analytic sentences, which is what makes them of great interest to semanticists.

The notions analytic, synthetic, and contradiction each apply to individual sentences. Analyticity, syntheticity, and contradiction are, then, sense properties of sentences.

Example

That man is human has the sense property of analyticity (or of being analytic).

That man is tall has the sense property of syntheticity (or of being synthetic).

That man is a woman has the sense property of being a contradiction.

Practice

(1) Does the analyticity of *That man is human* depend in some crucial way on a semantic relationship between the sense of *man* and that of *human*? *Yes / No*

(2) Which of the following statements seems to express this semantic relationship between *man* and *human* correctly? Circle your choice.
   (a) The sense of *man* includes the sense of *human.*
   (b) The sense of *human* includes the sense of *man.*
   (c) The sense of *man* is identical to the sense of *human.*

(3) Does the semantic relationship that exists between *man* and *human* also exist between *man* and *tall*? *Yes / No*

(4) Does the absence of this semantic relationship between *man* and *tall* account for the fact that *This man is tall* is not analytic, like *This man is human*? *Yes / No*

Feedback (1) Yes (2) (a) (3) No (4) Yes

Comment Note the interdependence of sense relations and sense properties. Sense properties of sentences (e.g. analyticity) depend on the sense properties of, and the sense relations between, the words they contain. The sense relation between the predicates *man* and *human* is known as hyponymy. The sense relation between the predicates *man* and *woman* is a kind of antonymy. The sense structure of a language is like a network, in which the senses of all elements are, directly or indirectly, related to the senses of all other elements.

For the rest of this unit, we will explore a limitation in the idea of sense, a limitation which is quite parallel to a limitation in the idea of extension, pointed out in the previous unit (Unit 8). For convenience, we repeat below our statement of the relationship usually envisaged between sense and extension.

> A speaker's knowledge of the sense of a predicate provides him with an idea of its extension. For example, the 'dictionary definition' which the speaker accepts for *cat* can be used to decide what is a cat, and what is not, thus defining, implicitly, the set of all cats.

Now we'll consider the implications of this envisaged relationship more closely. We need to recognize the concepts of necessary and sufficient conditions.

Definition A NECESSARY CONDITION on the sense of a predicate is a condition (or criterion) which a thing MUST meet in order to qualify as being correctly described by that predicate.

A SUFFICIENT SET OF CONDITIONS on the sense of a predicate is a set of conditions (or criteria) which, if they are met by a thing, are enough in themselves to GUARANTEE that the predicate correctly describes that thing.

Example Take the predicate *square*, as usually understood in geometry. 'Four-sided' is a necessary condition for this predicate, since for anything to be a square, it must be four-sided.

'Plane figure, four-sided, equal-sided and containing right angles' is a sufficient set of conditions for the predicate *square*, since if anything meets all of these conditions, it is guaranteed to be a square.

'Four-sided and containing right angles' is not a sufficient set of conditions for *square*. Many non-square shapes meet these conditions.

'Three-sided' is not a necessary condition for *square.*

Practice

(1) Is 'three-dimensional object' a necessary condition for the predicate *sphere*? *Yes / No*

(2) Is 'three-dimensional object' a necessary condition for the predicate *circle*? *Yes / No*

(3) Is 'three-dimensional object and circular in cross-section', a sufficient set of conditions for *sphere*? *Yes / No*

(4) Is 'three-dimensional object and with all points on surface equidistant from a single point' a sufficient set of conditions for *sphere*? *Yes / No*

(5) Is 'male' a necessary condition for *bachelor*? *Yes / No*

(6) Is 'adult, male, human, and unmarried' a sufficient set of conditions for *bachelor*? *Yes / No*

Feedback

(1) Yes (2) No (3) No (e.g. a cylinder) (4) Yes (5) Yes (6) Yes, for us, though some would debate the point, arguing, for example, that a monk meets these conditions but could not correctly be called a bachelor. For us, monks are bachelors.

Comment

Obviously, we are stating conditions on predicates in terms of other predicates in the language. Henceforth, we will drop the quotation marks, and envisage necessary and sufficient conditions as relationships between predicates. Thus we shall say, for example, that *animal* and *cat* are semantically related in such a way that the applicability of the former is a necessary condition for the applicability of the latter. (Nothing can be a cat without being an animal.) In fact it is possible to give complete definitions of some predicates in the form of a 'necessary and sufficient list' of other predicates. Kinship predicates and shape predicates are well-known examples.

Practice

(1) Is *father* adequately defined as *male parent*? *Yes / No*

(2) Is *female spouse* an adequate definition of *wife*? *Yes / No*

(3) Is *parent's father* an adequate definition of *grandfather*? *Yes / No*

(4) Is *hexagon* adequately defined as *five-sided plane figure*? *Yes / No*

Feedback

(1) Yes (2) Yes (3) Yes (4) No

Comment

The idea of defining predicates by sets of necessary and sufficient conditions can be evaluated from a practical point of view. The parallel with the undecidability of extensions is very close. Just as in a large number of cases it is implausible to postulate the existence of perfectly

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clearly defined sets of things, such as the set of all cats, the set of all tables, etc., so too the idea that there could be satisfactory definitions in the form of sets of necessary and sufficient conditions for such predicates as *cat*, *table*, etc. is clearly misguided.

One of the best known arguments (by the philosopher Ludwig Wittgenstein) against the idea that definitions of the meanings of words can be given in the form of sets of necessary and sufficient conditions involves the word *game*.

Practice

Given below are two definitions of the word *game*, taken from dictionaries of modern English. For each definition, give (a) the name of at least one game (e.g. *football*, *chess*) not covered by the definition, and (b) at least one thing that is not a game (e.g. piano-playing, watching television) but which falls within the given definition.

(1) An amusement or diversion

(a) _____ (b) _____

(2) A contest, physical or mental, according to set rules, undertaken for amusement or for a stake

(a) _____ (b) _____

Feedback

(1) (a) We can think of no examples of games which are not amusements or diversions. (b) piano-playing, watching television, fishing, embroidery
(2) (a) cat's-cradle (not a contest), patience or solitaire (also not contests, except in a vacuous sense) (b) a 100-metre footrace, high-jump, pole-vault (such events are not normally called 'games' but rather 'races', 'contests', or 'competitions'), musical competitions

Comment

Wittgenstein's example of *game* cuts both ways. On the one hand, one must admit that a set of necessary and sufficient conditions for *game* to cover all eventualities (including games played in the past and games yet to be invented) cannot be given. On the other hand, one has to admit that some of the definitions offered by dictionaries, while imperfect, do cover a large number of cases, and are in fact helpful.

It is possible to give at least some necessary and/or sufficient conditions for all predicates in a language. If there were a predicate for which we could give no necessary or sufficient condition, we would have to admit that we literally had no idea what it meant.

Practice

(1) Is the sense of *activity* a necessary part of the sense of *game* (i.e. must something be an activity to be a game)? *Yes / No*

(2) Is the sense of *game* a necessary part of the sense of *tennis* (i.e. must some activity be a game to be tennis)? *Yes / No*

(3) Is the sense of *chess* a sufficient part of the sense of *game* (i.e. is the fact that something is chess sufficient evidence to call it a game)? *Yes / No*

(4) A witty literary lady coined the memorable sentence, *A rose is a rose is a rose*, implying that definition could go no further. One can actually go at least a little further. Is the sense of *flower* a necessary part of the sense of *rose*? *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes (4) Yes

Comment Except in a few cases, complete definitions of the meanings of predicates cannot be given, but nevertheless it is possible to give, for every predicate in a language, at least some necessary and/or sufficient ingredients in its meaning. Later units (10–11, and the whole chapter on word meaning, Units 16–20) will explore in more detail just how far one can go in giving definitions of the meanings of words, but it is clear in advance that definitions of many terms will be quite sketchy indeed. It seems reasonable to suppose that speakers of a language have in their heads not only an idea of the bare sense of any given predicate, but also a stereotype of it.

Definition The STEREOTYPE of a predicate is a list of the TYPICAL characteristics of things to which the predicate may be applied.

Example The stereotype of *cat* would be something like:
Quadruped, domesticated, either black, or white, or grey, or tortoiseshell, or marmalade in colour, or some combination of these colours, adult specimens about 50 cm long from nose to tip of tail, furry, with sharp retractable claws, etc. etc.

Practice (1) Suggest four characteristics which should be included in the stereotype of the predicate *elephant*. (Be sure not to include any more basic term, properly belonging to the SENSE of *elephant*.)

_____

_____

(2) Give two characteristics which should be included in the stereotype of *mother*.

_____

_____

B.C.U. ...

(3) Give four characteristics which should be included in the stereotype of *cup.*

_____

_____

(4) Give four characteristics which should be included in the stereotype of *building.*

_____

_____

Feedback

(1) e.g. grey, very thick-skinned, virtually hairless, with a trunk and two tusks, adult specimens weighing several tons, etc. (2) e.g. caring for her young, living with their father, etc. (3) e.g. between 3 and 6 cm high, round in cross-section, wider at the top than at the bottom, of china, with a handle, made to fit a saucer, etc. (4) e.g. containing upward of three or four rooms, built of a durable material, such as concrete, wood, stone, with a roof, doors, and windows, used regularly by human beings, etc.

Comment

A stereotype is related to a prototype (see previous unit) but is not the same thing. A prototype of *elephant* is some actual elephant, whereas the stereotype of *elephant* is a list of characteristics which describes the prototype. The stereotype of a predicate may often specify a range of possibilities (e.g. the range of colours of typical cats), but an individual prototype of this predicate will necessarily take some particular place within this range (e.g. black).

Another important difference between prototype and stereotype is that a speaker may well know a stereotype for some predicate, such as *ghost*, *witchdoctor*, *flying saucer*, but not actually be acquainted with any prototypes of it. Stereotypes of expressions for things learnt about at second hand, through descriptions rather than direct experience, are generally known in this way.

The relationships between stereotype, prototype, sense and extension are summarized very briefly in the chart. The notions of prototype

	Thing (or set of things) specified	Abstract specification
Pertaining to all examples	EXTENSION	SENSE
Pertaining to typical examples	PROTOTYPE	STEREOTYPE

and stereotype are relatively recent in semantics. We have in fact given definitions which sharpen up the difference between the two terms, which are sometimes used vaguely or even interchangeably. Important though the notion of stereotype is in everyday language, it is obviously not so basic to meaning as the idea of sense, which we have defined as an indispensable hard core of meaning. In this book we will deal no further with the notions of prototype and stereotype, but we will give a lot of attention to sense.

Summary

The sense of an expression can be thought of as the sum of its sense properties and sense relations. Sense properties of sentences include those of being analytic, synthetic and a contradiction.

With the exception of a few predicates such as *bachelor*, *father*, *square*, *sphere*, etc. it is not possible to give complete definitions of the sense of most predicates by sets of necessary and sufficient conditions. Stereotypes defined in terms of typical characteristics account for the fact that people usually agree on the meanings of the words they use.

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UNIT 10
SENSE RELATIONS (1)
Identity and similarity of sense.

Entry requirements

SENSE (Units 3 and 9) and ANALYTICITY (Unit 9). If you feel you understand these notions take the entry test below. Otherwise review the relevant units.

Entry test

Words such as *mean*, *meaning*, *meant* etc. are used ambiguously in everyday language to indicate either sense or reference.

(1) Do the words *mean* and *meant* indicate sense (S) or reference (R) in the utterance:
"I'm sorry to have disturbed you – when I said 'Will you move your chair?', I didn't mean you, I meant Patrick here." *S / R*

(2) Does the word *means* indicate sense or reference in:
"If you look up *ochlocracy*, you'll find it means *government by the mob*." *S / R*

(3) Which of the following is correct? Circle your answer.
(a) The sense of any word is its dictionary definition, in the form of a complete set of necessary and sufficient conditions for its use.
(b) The sense of a predicate is the set of all things it can be correctly applied to.
(c) The sense of a predicate is its indispensable hard core of meaning.

(4) Are the following sentences analytic (A), synthetic (S), or a contradiction (C)?
(a) *John is simultaneously a man and not a human being* *A / S / C*
(b) *Mussolini was an Italian* *A / S / C*
(c) *Every female dog is a bitch* *A / S / C*

Feedback

(1) R (2) S (3) (c) (4) (a) C (b) S (c) A
If you had only one incorrect answer or had all correct, proceed to the introduction. If not, review Units 3 and 9 before continuing.

Introduction

In previous units you were introduced to the notion of sense. We now proceed to the examination of sense relations. What we have referred to previously as the sense of an expression is the whole set of sense relations it contracts with other expressions in the language. We shall be mainly concerned with the sense relations which involve individual predicates and whole sentences.

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Definition (partial) SYNONYMY is the relationship between two predicates that have the same sense.

Example

In most dialects of English, *stubborn* and *obstinate* are synonyms.

In many dialects, *brigand* and *bandit* are synonyms.

In many dialects, *mercury* and *quicksilver* are synonyms.

Comment Examples of perfect synonymy are hard to find, perhaps because there is little point in a dialect having two predicates with exactly the same sense. Note that our definition of synonymy requires identity of sense. This is a stricter definition than is sometimes given: sometimes synonymy is defined as similarity of meaning, a definition which is vaguer than ours. The price we pay for our rather strict definition is that very few examples of synonymy, so defined, can be found.

Practice In the following sentences, do the capitalized pairs of words have the same sense?

(1) *The thief tried to CONCEAL/HIDE the evidence* *Yes / No*
(2) *I'm going to PURCHASE/BUY a new coat* *Yes / No*
(3) *These tomatoes are LARGE/RIPE* *Yes / No*
(4) *This is a very LOOSE/SHORT definition* *Yes / No*
(5) *You have my PROFOUND/DEEP sympathy* *Yes / No*
(6) *It is a very WIDE/BROAD street* *Yes / No*

Feedback (1) Yes (2) Yes (3) No (4) No (5) Yes (6) Yes

Comment Clearly the notions of synonymy and sense are interdependent. You can't understand one without understanding the other. These concepts are best communicated by a range of examples. In general, when dealing with sense relations, we shall stick to clear cases. (We admit the existence of many genuinely unclear, borderline cases.) In considering the sense of a word, we abstract away from any stylistic, social, or dialectal associations the word may have. We concentrate on what has been called the cognitive or conceptual meaning of a word.

Example

How many kids have you got?

How many children have you got?

Here we would say that *kids* and *children* have the same sense, although clearly they differ in style, or formality.

Practice In the following sentences, do the pairs of words in capitals have the

same sense? (They do differ in their dialectal, stylistic, or social associations.) Circle S for 'same' or D for 'different'.

(1) *He comes to see us every FALL/AUTUMN* S / D
(2) *Nothing is more precious to us than our FREEDOM/LIBERTY* S / D
(3) *The body was found in the BOOT/TRUNK of the car* S / D
(4) *We've just bought a new HOUSE/APARTMENT* S / D
(5) *John got a bullet wound in his HEAD/GUTS* S / D
(6) *A BLOKE/CHAP I know has pickled onions for breakfast* S / D

Feedback (1) S (2) S (3) S (4) D (5) D (6) S

Comment Synonymy is a relation between predicates, and not between words (i.e. word-forms). Recall that a word may have many different senses; each distinct sense of a word (of the kind we are dealing with) is a predicate. When necessary, we distinguish between predicates by giving them subscript numbers. For example, *hide*$_1$ could be the intransitive verb, as in *Let's hide from Mummy*; *hide*$_2$ could be the transitive verb, as in *Hide your sweeties under the pillow*; *hide*$_3$ could be the noun, as in *We watched the birds from a hide*; and *hide*$_4$ could be the noun, as in *The hide of an ox weighs 200 lbs*. The first three senses here (the first three predicates) are clearly related to each other in meaning, whereas the fourth is unrelated. It is because of the ambiguity of most words that we have had to formulate practice questions about synonymy in terms of sentences. The sentence *The thief tried to hide the evidence*, for example, makes it clear that one is dealing with the predicate *hide*$_2$ (the transitive verb). *Hide*$_2$ is a synonym of *conceal*.

Practice The following pairs of words share at least one sense in common, but do not share all their senses (i.e. they are like *hide* and *conceal*). For each pair: (a) give a sentence in which the two words could be used interchangeably without altering the sense of the sentence – use a slash notation, as we have done in practice above; (b) give another sentence using one of the words where a different sense is involved. As a guide, we have done the first one for you.

(1) *deep/profound*

(a) *You have my deep/profound sympathy* _____

(b) *This river is very deep* (*This river is very profound* is unacceptable.)

(2) *ripe/mature*

(a) _____

(b) _____

(3) *broad/wide*

(a) _____

(b) _____

(4) *earth/soil*

(a) _____

(b) _____

(5) *side/edge*

(a) _____

(b) _____

Feedback

The following are just some possibilities: (2) (a) *After dinner we had a ripe/mature Camembert cheese*, (b) *She's a very mature person* (not *a ripe person*) (3) (a) *The river is very broad/wide at this point*, (b) *He speaks with a broad Scottish accent* (not *a wide accent*) (4) (a) *They filled the hole with good soft earth/soil*, (b) *The rocket fell back to earth when its motors failed* (not *back to soil*) (5) (a) *The house stands at the side/edge of the lake*, (b) *Britain and Australia are on opposite sides of the world* (not *edges*)

Comment

The definition of synonymy as a relationship between the senses of words requires a clear separation of all the different senses of a word, even though some of these senses may be quite closely related, as with $hide_1$, $hide_2$ and $hide_3$, mentioned in the last comment.

All the examples so far have been of synonymy between predicates realized grammatically by a word of the same part of speech, for example between adjective and adjective, as with *deep* and *profound*. But the notion of synonymy can be extended to hold between words of different parts of speech, for example between the verb *sleeping* and the adjective *asleep*. Examples like these are not the kind usually given of synonymy, but they help to make the point that the sense of a word does not depend entirely on its part of speech. Grammar and meaning are separate though closely related aspects of language.

Definition

A sentence which expresses the same proposition as another sentence is a PARAPHRASE of that sentence (assuming the same referents for any referring expressions involved). Paraphrase is to SENTENCES (on individual interpretations) as SYNONYMY is to PREDICATES (though some semanticists talk loosely of synonymy in the case of sentences as well).

Example

Bachelors prefer redhaired girls is a paraphrase of *Girls with red hair are preferred by unmarried men*

Comment

Look at the following pair of sentences, which are paraphrases of each other.

(A) *John sold the book to a grandson of W.B. Yeats*

(B) *A grandson of W.B. Yeats bought the book from John*

It is not possible for (A) to be true while (B) is not (assuming that we are dealing with the same John and the same grandson of W.B. Yeats). Thus (A) has the same truth value as (B), so that if (A) is true, (B) is true and vice versa; also, if (A) is false, then (B) is false and vice versa.

Practice

Are the following pairs paraphrases of each other (assuming that the referents of the names and other referring expressions remain the same)? Indicate your answer by circling either P (paraphrase) or NP (not a paraphrase).

(1) *John is the parent of James*
James is the child of John — *P / NP*

(2) *John is the parent of James*
James is the parent of John — *P / NP*

(3) *My father owns this car*
This car belongs to my father — *P / NP*

(4) *The fly was on the wall*
The wall was under the fly — *P / NP*

(5) *Some countries have no coastline*
Not all countries have a coastline — *P / NP*

Feedback

(1) P (2) NP (3) P (4) NP (5) P

Definition

HYPONYMY is a sense relation between predicates (or sometimes longer phrases) such that the meaning of one predicate (or phrase) is included in the meaning of the other.

Example

The meaning of *red* is included in the meaning of *scarlet*.
Red is the superordinate term; *scarlet* is a hyponym of *red* (scarlet is a kind of red).

Practice

Look at the following, and fill in some missing hyponyms.

(1) *pig*
sow ___ ___ ___

(2) *tree*
beech ___ ___ ___

(3) *virtue*
honesty ___ ___ ___

(4) *emotion*
fear ___ ___ ___

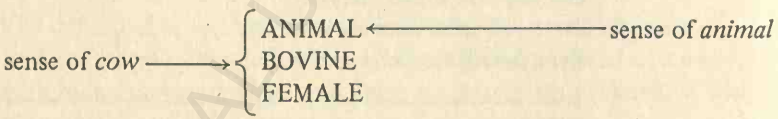
(5) *strike* (transitive verb) (6) *pleasant*

___ ___ ___ ___ ___ ___ ___ ___

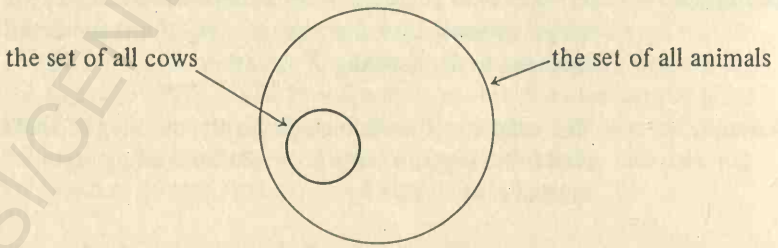
Feedback (1) *piglet, boar* (2) *oak, ash, sycamore, fir* etc. (3) *patience, wisdom, prudence, generosity* etc. (4) *love, anger, happiness, sadness* etc. (5) *kick, hit, butt, thump* etc. (6) *tasty, pretty, soothing* etc.

Comment We have dealt with the clear cases. Note that even in the case of abstract nouns, there are some quite clear things that we can say about their meanings, or senses. Only in the case of literally meaningless predicates is there nothing to be said about the sense of a predicate.

Before we leave the discussion of hyponymy, a note should be made of its relationship with extension (Unit 8). Hyponymy is a sense relation. Another term for sense, preferred by logicians, is intension, a term deliberately chosen for its implicit contrast with extension. Hyponymy is defined in terms of the inclusion of the sense of one item in the sense of another. We say, for example, that the sense of *animal* is included in the sense of *cow*. This inclusion can be shown roughly by a diagram giving a list of the 'sense-components' of *cow*. It will be seen that this list includes the component 'animal'. But paradoxically



perhaps, if we draw a diagram of the extensions of *cow* and *animal*, the inclusion relationship appears the other way around.



Practice (1) Which of the following descriptions is the more specific?

(a) A man, 5ft 8in tall, with black hair, moustache, no beard, wearing a beige duffle coat, blue jeans, and lace-up shoes

(b) A man in a duffle coat (*a*) / (*b*)

(2) Which of the above descriptions gives more information? (*a*) / (*b*)

(3) Which of the above descriptions describes more men? (*a*) / (*b*)
(4) In general, does giving more information increase or reduce the range of things described? _____

Feedback (1) (a) (2) (a) (3) (b) (4) It reduces the range of things described.

Definition We define HYPONYMY in such a way that SYNONYMY counts as a special case of hyponymy. For example, given two synonyms, such as *mercury* and *quicksilver*, we say for convenience that these also illustrate the hyponymy relationship, and that *mercury* and *quicksilver* are hyponyms of each other. Thus synonymy can be seen as a special case of hyponymy, i.e. SYMMETRICAL HYPONYMY.

Rule If X is a hyponym of Y and if Y is also a hyponym of X, then X and Y are synonymous.

Definition A proposition X ENTAILS a proposition Y if the truth of Y follows necessarily from the truth of X. We extend this basic definition in terms of propositions to cover SENTENCES in the following way. A sentence expressing proposition X entails a sentence expressing proposition Y if the truth of Y follows necessarily from the truth of X.

Example *John ate all the kippers* (X) entails *Someone ate something* (Y).
John killed Bill (X) entails *Bill died* (Y).
It is not possible to think of any circumstances in which sentence X is true and sentence Y false.

Comment In all of our exercises on entailment it must be remembered that the truth of sentences (and of propositions) is relative to particular sets of circumstances, or states of affairs. Thus when we say, for example, that *John killed Bill* entails *Bill died*, we are in fact envisaging these sentences being uttered in circumstances where both instances of *Bill* have the same referent and the time indicated by the use of the past tense (in *killed* and *died*) is related to the same hypothetical time of utterance. Obviously *Bill died* could not be true any time before it was true that *John killed Bill.*

Practice Look at the following and circle the statements of entailment as correct (C) or incorrect (I).

(1) *John cooked an egg* entails *John boiled an egg.* C / I
(2) *John boiled an egg* entails *John cooked an egg.* C / I
(3) *I saw a boy* entails *I saw a person.* C / I
(4) *John stole a car* entails *John took a car.* C / I

(5) *His speech disturbed me* entails *His speech deeply disturbed me.* *C / I*

Feedback (1) I (2) C (3) C (4) C (5) I

Comment Entailment applies cumulatively. Thus if X entails Y and Y entails Z, then X entails Z. (Technically, entailment is a transitive relation. See Unit 18.)

Example X, *Some boys ran down the street* entails Y, *Some kids ran down the street*

Y, *Some kids ran down the street* entails Z, *Some kids went down the street*

Therefore,

X, *Some boys ran down the street* entails Z, *Some kids went down the street.*

Definition Two sentences may be said to be PARAPHRASES of each other if and only if they have exactly the same set of ENTAILMENTS; or, which comes to the same thing, if and only if they mutually entail each other so that whenever one is true the other must also be true.

Example *John and Mary are twins* entails *Mary and John are twins*;

Mary and John are twins entails *John and Mary are twins.*

Therefore,

John and Mary are twins is a paraphrase of *Mary and John are twins.*

Practice Look at the following pairs of sentences and see if they have the same set of entailments (Yes) or not (No) (i.e. see if they are paraphrases of each other).

(1) *No one has led a perfect life*
Someone has led a perfect life *Yes / No*

(2) *We've just bought a dog*
We've just bought something *Yes / No*

(3) *The house was concealed by the trees*
The house was hidden by the trees *Yes / No*

(4) *I ran to the house*
I went to the house *Yes / No*

(5) *It is hard to lasso elephants*
Elephants are hard to lasso *Yes / No*

Feedback (1) No (2) No (3) Yes (4) No (5) Yes

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Comment

The relationship between entailment and paraphrase is parallel to the relationship between hyponymy and synonymy, as you will have noticed. Paraphrase is symmetric (i.e. two-way) entailment.

Practice

Fill in the chart with the words *entailment*, *paraphrase*, *hyponymy*, and *synonymy* in the appropriate boxes, thus summarizing their relationship.

	Relation between pairs of sentences	Relation between pairs of words
Not necessarily symmetric (i.e. can be 'one-way')		
Symmetric (i.e. 'both ways')		

Feedback

entailment	hyponymy
paraphrase	synonymy

Comment

Now we explore further the relationship between hyponymy and entailment.

Practice

(1) In terms of the concepts you have now learned, what can you say about the relationships between the words in column A below and those in column B?

A	B
tulip	*flower*
sheep	*animal*
steal	*take*
square	*rectangular*

(2) What can you say about the relationship between the A sentences and the B sentences below?

A	B
Henry was chewing a tulip	*Henry was chewing a flower*
Denis got savaged by a sheep	*Denis got savaged by an animal*
David stole a pound of beef	*David took a pound of beef*
Mary climbed through a square hole in the roof	*Mary climbed through a rectangular hole in the roof*

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Feedback (1) The A words are hyponyms of the B words. (2) The A sentences entail the B sentences.

Comment In simple cases such as these, there is a clear rule that can be stated about the relation between hyponymy and entailment.

Practice Given below are three attempts at stating this rule. Only one of them is actually correct. Which is the correct rule? Circle your choice.

(a) Given two sentences A and B, identical in every way except that A contains a word X where B contains a different word Y, and X is a hyponym of Y, then sentence B entails sentence A.

(b) Given two sentences A and B, identical in every way except that A contains a word X where B contains a different word Y, and Y is a hyponym of X, then sentence A entails sentence B.

(c) Given two sentences A and B, identical in every way except that A contains a word X where B contains a different word Y, and X is a hyponym of Y, then sentence A entails sentence B.

Feedback The rule is correctly formulated in (c). We will call this rule the Basic Rule of Sense Inclusion.

Comment The Basic Rule of Sense Inclusion does not work in all cases. There are systematic exceptions when certain logical words, such as *not* and *all*, are involved. We look first at cases with *not* (and *n't*), i.e. cases of negative sentences.

Practice (1) What is the relationship between the A sentences and the B sentences below?

A	B
Henry was not chewing a tulip	*Henry was not chewing a flower*
Denis didn't get savaged by a sheep	*Denis didn't get savaged by an animal*
David didn't steal a pound of beef	*David didn't take a pound of beef*
Mary didn't climb through a square hole in the roof	*Mary didn't climb through a rectangular hole in the roof*

---

(2) Below is an unfinished version of a rule of sense inclusion for negative sentences. Finish the statement of the rule correctly.

Given two negative sentences A and B, identical in every way except that A contains a word X where B contains a different word Y, and X is a hyponym of Y, then

---

Feedback (1) In this case, the B sentences entail the A sentences. (For example, if it is true that Henry was not chewing a flower, then it must be true that he was not chewing a tulip.) (2) The correct completion of the rule is: 'sentence B entails sentence A'.

Practice Now we look at sentences involving the word *all*. What is the relationship between the A sentences and the B sentences below?

A	B
Henry chewed up all my tulips	*Henry chewed up all my flowers*
All Denis's sheep have foot-rot	*All Denis's animals have foot-rot*
Mary coloured all the square shapes purple	*Mary coloured all the rectangular shapes purple*

the B sent. entail the A sent.

Part of the answer is: the B sentences entail the A sentences. But there is an important qualification that must be added to this. Can you think what it is?

only when the set of the act. exists

Feedback The B sentences entail the A sentences. However, the entailment from B to A only holds when the set of things referred to by the phrase including *all* actually exists. For example, *All Denis's animals have foot-rot* entails *All Denis's sheep have foot-rot* only if Denis actually has some sheep, i.e. if some of his animals are in fact sheep.

Comment Obviously a (somewhat complicated) rule of sense inclusion for sentences involving *all* could be formulated, but we will not go into the details of it here.

Clearly, rules stating the relationship between hyponymy and entailment are somewhat complex, although most of the logical principles involved are well enough understood. We will mention one more case which presents problems, the case of gradable words, like *big*, *tall*, *small*, *expensive* etc.

Practice What are the entailment relations between the following sentences?

A	B
John saw a big mouse	*John saw a big animal*
A tall pygmy came in	*A tall person came in*
We went in a small bus	*We went in a small vehicle*
That was an expensive sandwich	*That was an expensive meal*

no entailment

Feedback There are no entailment relations between these sentences. Thus although a mouse is an animal, a big mouse is not a big animal. The presence of gradable

words upsets the normal relationship between hyponymy and entailment. (We will mention gradable words in several other units.)

Summary

Hyponymy and synonymy are sense relations between predicates. The latter is a special, symmetric, case of the former. Entailment and paraphrase are sense relations between sentences, the latter being a special, symmetric case of the former. The sense relations between predicates and those between sentences are systematically connected by rules such as the basic rule of sense inclusion. These sense relations are also systematically connected with such sense properties of sentences as ANALYTICITY and CONTRADICTION.

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UNIT 11
SENSE RELATIONS (2)
Oppositeness and dissimilarity of sense and ambiguity.

Entry requirements

SENSE (Unit 3), ANALYTIC, SYNTHETIC, and CONTRADICTION (Unit 9) and SENSE RELATIONS (1), (Unit 10). If you feel you understand these notions, take the entry test below. Otherwise review the relevant units.

Entry test

(1) Analyticity is which of the following? Circle your choice.
- (a) a sense relation between sentences
- (b) a sense property of sentences
- (c) a sense relation between predicates
- (d) a sense property of predicates

(2) The sentence *John is older than himself* is:
- (a) analytic
- (b) synthetic
- (c) a contradiction

(3) The relationship between the sentences *I detest semantics* and *I am not fond of semantics* is that:
- (a) They are paraphrases of each other.
- (b) The first entails the second.
- (c) The second entails the first.
- (d) The first is a hyponym of the second.

(4) Which of the following statements is correct?
- (a) All analytic sentences are paraphrases of each other.
- (b) All contradictions are paraphrases of each other.
- (c) Given two sentences, identical except that one has a predicate X where the other has a predicate Y, where X is a hyponym of Y, then the sentence containing X is a paraphrase of the sentence containing Y.
- (d) If a sentence X entails a sentence Y and sentence Y also entails sentence X, then X and Y are paraphrases of each other.

(5) Which of the following is correct?
- (a) Synonymy is to entailment as hyponymy is to paraphrase.
- (b) Synonymy is to paraphrase as hyponymy is to entailment.
- (c) Synonymy is to hyponymy as entailment is to paraphrase.

Feedback

(1) (b) (2) (c) (3) (b) (4) (d) (5) (b)

If you scored at least 4 out of 5 correct, continue to the introduction. Otherwise, review Units 9 and 10 before continuing.

Introduction

In this unit we complete our introductory review of sense relations. Our topics include what has been termed 'oppositeness of meaning', an area that traditionally was viewed in rather simple terms. Modern semanticists, as you will see, have explored and mapped many areas within the simple traditional division.

A traditional view of antonymy is that it is simply 'oppositeness of meaning'. This view is not adequate, as words may be opposite in meaning in different ways, and some words have no real opposites.

Practice

Quickly, what would you say are the opposites of the following words?

(1) *hot* _____ (5) *male* _____

(2) *thick* _____ (6) *dead* _____

(3) *buy* _____ (7) *lunch* _____

(4) *lend* _____ (8) *liquid* _____

Feedback

(1) *cold* (2) *thin* (3) *sell* (4) *borrow* (5) *female* (6) *alive* (7) no real opposite (*breakfast*, *dinner*?) (8) no real opposite – part of a three-termed system, with *solid* and *gas*

Comment

Hot is not the opposite of *cold* in the same way as *borrow* is the opposite of *lend*. *Thick* is not the opposite of *thin* in the same way as *dead* is the opposite of *alive*.

We will not talk of simple 'oppositeness of meaning', but will define four basic types of antonymy (or incompatibility). The first we define is binary antonymy (sometimes also called complementarity).

Definition

BINARY ANTONYMS are predicates which come in pairs and between them exhaust all the relevant possibilities. If the one predicate is applicable, then the other cannot be, and vice versa.

Example

true and *false* are binary antonyms.
If a sentence is true, it cannot be false. If it is false, it cannot be true.

Practice

Are the following pairs of predicates binary antonyms?

(1) *chalk – cheese* *Yes / No* (4) *dead – alive* *Yes / No*

(2) *same – different* *Yes / No* (5) *married – unmarried* *Yes / No*

(3) *copper – tin* *Yes / No* (6) *love – hate* *Yes / No*

Feedback (1) No, if something is not chalk, it is not necessarily cheese. (2) Yes, if two things are the same, they are not different: if they are not the same, they are different. (3) No (4) Yes (5) Yes (6) No, if I don't love you, I don't necessarily hate you.

Comment Sometimes two different binary antonyms can combine in a set of predicates to produce a four-way contrast.

Practice (1) Place the words *man*, *boy*, *woman*, *girl* in the appropriate boxes in this chart.

	Male	Female
Adult		
Non-adult		

(2) Fill in the words *bachelor*, *spinster*, *husband*, *wife* in the chart below.

	Male	Female
Married		
Unmarried		

Feedback

(1) man	woman	(2) husband	wife
boy	girl	bachelor	spinster

Practice (1) In the first chart, *girl* was diagonally opposite to *man*. Would one normally think of *girl* as the antonym of *man*? *Yes / No*

(2) In the second chart, *wife* was diagonally opposite to *bachelor*. Would one normally think of *wife* as the antonym of *bachelor*? *Yes / No*

Feedback (1) No, one could normally think of either *woman* or *boy*. (2) No, one would usually think first of either *spinster* or possibly *husband*, or *married man*.

Comment We see that combinations of binary antonyms produce more complicated (e.g. four-way) systems of contrast, but that within such systems the most natural way to pair off pairs of antonyms is along the same

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dimension, e.g. *man* vs. *woman* (along the male/female dimension), but not *man* vs. *girl* (cutting across both dimensions).

Definition

If a predicate describes a relationship between two things (or people) and some other predicate describes the same relationship when the two things (or people) are mentioned in the opposite order, then the two predicates are CONVERSES of each other.

Example

Parent and *child* are converses, because *X is the parent of Y* (one order) describes the same situation (relationship) as *Y is the child of X* (opposite order).

Practice

Are the following pairs of expressions converses?

(1) *below – above* — *Yes / No*
(2) *grandparent – grandchild* — *Yes / No*
(3) *love – hate* — *Yes / No*
(4) *conceal – reveal* — *Yes / No*
(5) *greater than – less than* — *Yes / No*
(6) *own – belong to* — *Yes / No*

Feedback

(1) Yes, if X is below Y, Y is above X. (2) Yes (3) No (4) No (5) Yes (6) Yes

Comment

The notion of converseness can be applied to examples in which three things (or people) are mentioned. The case of *buy* and *sell* is one such example.

Practice

(1) If John bought a car from Fred, is it the case that Fred sold a car to John? — *Yes / No*
(2) Are *buy* and *sell* converses? — *Yes / No*
(3) Are *borrow* and *lend* converses? — *Yes / No*
(4) Are *give* and *take* converses? — *Yes / No*
(5) Are *come* and *go* converses? — *Yes / No*

Feedback

(1) Yes (2) Yes (3) Yes, if X borrows something from Y, Y lends that thing to X. (4) No, if X takes something from Y, Y does not necessarily give that thing to X (for example, X might take it without Y's permission), so *give* and *take* are not exact converses, although they almost meet the definition. (5) No, if Mohammed goes to the mountain, the mountain does not come to Mohammed.

Comment

In both types of antonymy discussed so far, binary antonymy and converseness, the antonyms come in pairs. Between them, the members of a pair of binary antonyms fully fill the area to which they can be applied. Such areas can be thought of as miniature semantic systems.

Thus, for example, *male* and *female* between them constitute the English sex system, *true* and *false* are the two members of the truth system etc. Other such systems can have three, or four, or any number of members.

Practice

(1) What would you call the system of oppositions to which the words *Spring* and *Summer* both belong?

_____

(2) How many members does this system have altogether?

_____

(3) What would you call the system to which *solid* and *gas* belong?

_____

(4) How many members does this system have?

_____

(5) Can you think of an example of a seven-member system? (Hint: you use it every day of the week.)

_____

(6) Four-member systems are quite common. How many can you think of?

_____

Feedback

(1) The 'season system' would be a natural name. (2) four (3) It could be called the 'physical-state system'. (4) Three: *liquid*, *solid* and *gas*. (5) The system that includes *Monday*, *Tuesday*, *Wednesday*, etc. (6) *hearts*, *clubs*, *diamonds*, *spades*; *earth*, *air*, *fire*, *water*; *North*, *East*, *South*, *West* (although this last one is frequently boosted to a system with more members, such as *South-West*, *North-East-by-North* etc.).

Comment

What these systems have in common is that (a) all the terms in a given system are mutually incompatible, and (b) together, the members of a system cover all the relevant area. For instance, a playing card cannot belong to both the hearts suit and the spades suit. And besides hearts, clubs, diamonds and spades, there are no other suits. Systems such as these are called systems of multiple incompatibility. There are large numbers of open-ended systems of multiple incompatibility.

Practice

(1) How many English colour words (like *red*, *grey*) are there?

_____

(2) How many names of plants are there in English (e.g. *holly*, *daffodil*)?

---

(3) How many names of different metals are there in English (e.g. *brass*, *tin*)?

---

(4) Think of three further examples of such open-ended systems of multiple incompatibility.

Feedback (1)–(3) an indefinite number (4) the vehicle system (*car*, *bus*, *train* etc.); the animal system (*bat*, *bear*, *budgerigar* etc.); the flower system (*pansy*, *primrose*, *poppy* etc.); the furniture system (*table*, *chair*, *bed* etc.) and many, many more.

Definition Two predicates are GRADABLE antonyms if they are at opposite ends of a continuous scale of values (a scale which typically varies according to the context of use).

Example *Hot* and *cold* are gradable antonyms.
Between *hot* and *cold* is a continuous scale of values, which may be given names such as *warm*, *cool* or *tepid*. What is called *hot* in one context (e.g. of oven temperatures in a recipe book) could well be classed as *cold* in another context (e.g. the temperatures of stars).

Practice Are the following pairs gradable antonyms?

(1) *tall – short* *Yes / No*
(2) *long – short* *Yes / No*
(3) *clever – stupid* *Yes / No*
(4) *top – bottom* *Yes / No*
(5) *love – hate* *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes (4) No (5) Yes, intermediate expressions on the scale include *like*, *dislike*, *be indifferent to.*

Comment A good test for gradability, i.e. having a value on some continuous scale, as gradable antonyms do, is to see whether a word can combine with *very*, or *very much*, or *how?* or *how much?* For example, *How tall is he?* is acceptable, but *How top is that shelf?* is not generally acceptable.

Practice Apply this test to the following words to decide whether they are gradable (G) or not (NG).

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(1) *near*	G / NG	(4) *electrical*	G / NG
(2) *cheap*	G / NG	(5) *triangular*	G / NG
(3) *beautiful*	G / NG		

Feedback (1) G (2) G (3) G (4) NG (5) NG

Practice To sum up these exercises in antonymy and incompatibility, classify the following pairs as binary antonyms (B), multiple incompatibles (M), converses (C) or gradable antonyms (G).

(1) *cat – dog*	B / M / C / G
(2) *easy – difficult*	B / M / C / G
(3) *good – bad*	B / M / C / G
(4) *better than – worse than*	B / M / C / G
(5) *deciduous – evergreen*	B / M / C / G
(6) *pass – fail*	B / M / C / G
(7) *urban – rural*	B / M / C / G

Feedback (1) M (Both *cat* and *dog* belong to the open-ended English animal name system.) (2) G (3) G (4) C (The relationship between *better than* and *worse than* is one of converseness, even though both *better* and *worse* are themselves gradable terms, since, for example, *very much better* or *how much worse?* are acceptable expressions.) (5) B (6) B (7) a debatable case – probably B for some people, G for others.

Comment We saw in the previous unit that certain relationships between predicates, such as hyponymy and synonymy, could be paired off with certain relationships between sentences, such as entailment and paraphrase. Antonymy is a relationship between predicates, and the corresponding relationship between sentences is contradictoriness.

Definition A proposition is a CONTRADICTORY of another proposition if it is impossible for them both to be true at the same time and of the same circumstances. The definition can naturally be extended to sentences thus: a sentence expressing one proposition is a contradictory of a sentence expressing another proposition if it is impossible for both propositions to be true at the same time and of the same circumstances. Alternatively (and equivalently) a sentence contradicts another sentence if it entails the negation of the other sentence.

Example *This beetle is alive* is a contradictory of *This beetle is dead.*

Practice Say whether the following pairs are contradictories (i.e. contradict each other) or not. Assume constancy of reference of all referring expressions.

(1) *John murdered Bill*
Bill was murdered by John — *Yes / No*

(2) *John murdered Bill*
John did not kill Bill — *Yes / No*

(3) *Bill died*
James can't swim — *Yes / No*

(4) *Mary is Ann's parent*
Mary is Ann's child — *Yes / No*

(5) *Room 404 is below this one*
Room 404 is above this one — *Yes / No*

(6) *This doorhandle is brass*
This doorhandle is plastic — *Yes / No*

Feedback (1) No (2) Yes (3) No (4) Yes (5) Yes (6) Yes

Comment Below is a suggested statement of the relationship between contradictoriness and antonymy (and incompatibility). We will see whether this statement actually works correctly for all the types of antonymy and incompatibility that we have discussed.

> Statement A
> Given two sentences, both identical except that: (a) one contains a word *X* where the other contains a word *Y*, and (b) *X* is an antonym of *Y* (or *X* is incompatible with *Y*), then the two sentences are contradictories of each other (i.e. contradict each other).

Notice that the formulation of this statement is exactly parallel to what we called the Basic Rule of Sense Inclusion in Unit 10, the rule relating hyponymy to entailment in basic cases. Let us see whether the above statement of the relation between antonymy and contradictoriness is as successful.

Practice Do the following pairs of examples conform to Statement A?

(1) *This cat is male*
This cat is female — *Yes / No*

(2) *John hates Californians*
John loves Californians — *Yes / No*

(3) *This mouse is dead*
This mouse is alive — *Yes / No*

(4) *John owns three male cats*
John owns three female cats — *Yes / No*

(5) *Some people love Californians*
Some people hate Californians — *Yes / No*

(6) *I found a dead mouse in the shower*
I found a live mouse in the shower — *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes (4) No, John might own three male and three female cats. (5) No (6) No, I might have found two mice, one dead, one alive.

Comment In the first three examples the two sentences are identical except for a pair of antonyms (or incompatibles), and the sentences contradict each other. These examples, then, conform to Statement A. In the last three examples the two sentences are identical except for a pair of antonyms or incompatibles, but the sentences do not contradict each other. They are therefore counterexamples to Statement A, and we must conclude that Statement A is wrong. What, then, is the correct statement of the relation between contradictoriness and antonymy? Indeed, is there any single statement that correctly captures this relationship? We shall not pursue the matter here, but a correct formulation seems to need to make use of the concepts of referring expression, predication, and quantification. (See Units 4 and 5 for the first two of these.)

One of the goals of a semantic theory is to describe and explain ambiguities in words and in sentences.

Definition A word or sentence is AMBIGUOUS when it has more than one sense. A sentence is ambiguous if it has two (or more) paraphrases which are not themselves paraphrases of each other.

Example *We saw her duck* is a paraphrase of *We saw her lower her head* and of *We saw the duck belonging to her*, and these last two sentences are not paraphrases of each other. Therefore *We saw her duck* is ambiguous.

Practice The following sentences are all ambiguous. For each one give two paraphrases which are not paraphrases of each other. Be very careful to make sure that your answers are exact paraphrases of the original sentence, as far as this is possible.

(1) *The chicken is ready to eat*

to be eaten

to eat smth. (nice food)

(2) *Visiting relatives can be boring*

(when) who are visiting

Having/to visit rel.

(3) *They passed the port at midnight*

They passed the seaport at mid.

They passed the portwine at n

(4) *The thing that bothered Bill was crouching under the table*

_____

_____

(5) *The captain corrected the list*

_____

_____

Feedback

(1) The chicken is ready to be eaten vs. The chicken is ready to eat some food
(2) It can be boring to visit relatives vs. Relatives who are visiting can be boring
(3) They passed the seaport at midnight vs. They passed the port wine at midnight
(4) It was crouching under the table that bothered Bill vs. The creature that bothered Bill was crouching under the table (5) The captain corrected the inventory vs. The captain corrected the tilt

Comment

Some semanticists adopt a definition of 'sentence' according to which a sentence cannot be ambiguous. For such scholars, a sentence is a particular string of words associated with one particular sense. According to this usage, for example, *The chicken is ready to eat* is not one sentence, but represents two different sentences. We adopt a usage that has been current in recent Linguistics, and according to which sentences like *The chicken is ready to eat* (and the others given above) are single ambiguous sentences. This is essentially a matter of terminology.

Definition

In the case of words and phrases, a word or phrase is AMBIGUOUS, if it has two (or more) SYNONYMS that are not themselves synonyms of each other.

Example

Trunk is synonymous with *elephant's proboscis* and with *chest*, but these two are not synonyms of each other, so *trunk* is ambiguous. Similarly *coach* is synonymous with *trainer* and with *charabanc* (or *bus*) but these two are not synonyms of each other, so *coach* is ambiguous.

Practice

Each of the following words is ambiguous. For each one, give two synonymous words or phrases that are not themselves synonymous. You might find it helpful to use a dictionary for this exercise.

(1) *bust* _____ vs. _____

(2) *plane* _____ vs. _____

(3) *crop* _____ vs. _____

(4) *pen* _____ vs. _____

(5) *sage* _____ vs. _____

Feedback (1) sculpture of a person's head, shoulders and chest vs. broken (2) aeroplane vs. flat surface (3) harvest vs. handle of a riding whip (4) handwriting instrument using ink vs. enclosure (5) wise vs. herb (*salvia officinalis*)

Comment We use the term 'word' in the sense of 'word-form'. That is, anything spelt and pronounced the same way (in a given dialect) is for us the same word. Some semanticists work with a more abstract notion of word, in which a word-form is associated with a particular sense, or group of related senses, to give a 'word'. For such semanticists, for example, *sage* corresponds to two different words, whereas for us *sage* is a single word with different senses, i.e. an ambiguous word. We use 'predicate' for 'word-in-a-particular-sense'. Predicates cannot be ambiguous, according to this definition.

In the case of ambiguous words, a distinction is sometimes made between polysemy and homonymy. This distinction has basically to do with the closeness, or relatedness of the senses of the ambiguous words.

Definition A case of HOMONYMY is one of an ambiguous word, whose different senses are far apart from each other and not obviously related to each other in any way. Cases of homonymy seem very definitely to be matters of mere accident or coincidence.

Example *Mug* (drinking vessel vs. gullible person) would be a clear case of homonymy.
There is no obvious conceptual connection between its two meanings.

Definition A case of POLYSEMY is one where a word has several very closely related senses.

Example *Mouth* (of a river vs. of an animal) is a case of polysemy.
The two senses are clearly related by the concepts of an opening from the interior of some solid mass to the outside, and of a place of issue at the end of some long narrow channel.

Practice The following are all polysemous words. For each one, we have indicated two closely related senses. What you have to do is to say how these senses are related, i.e. what they have in common. To show you the way, we have done the first one for you.

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(1) *chimney* (pipe or funnel-like structure on a building for smoke to escape through vs. narrow vertical space between rocks up which a climber can wriggle by pressing against the sides)

Both senses contain the concept of a narrow vertical shaft in some solid material.

(2) *cup* (drinking vessel vs. brassiere cup)

container with a round shape

(3) *guard* (person who guards, sentinel vs. solid protective shield, e.g. around machinery)

protection of danger

(4) *ceiling* (top inner surface of a room vs. upper limit)

upper boundary

(5) *Earth/earth* (our planet vs. soil)

land

(6) *drive* (as in *drive a nail* vs. as in *drive a car*)

causing smth to move in a particular direction

Feedback (2) Both senses have the concept of container with a particular round shape. (3) Both contain the concept of protection against danger. (4) Both contain the concept of a maximum upper boundary. (5) Both contain the concept of land at different levels of generality (earth as land, not sky; earth as soil, not water). (6) Both contain the concept of causing something to move in a particular direction.

Comment In practice, it is impossible to draw a clear line between homonymy and polysemy. However, as usual in these units on sense and sense relations, we will try to concentrate on clear cases, where there is no difficulty in drawing the distinction.

Practice

Decide whether the following words are examples of homonymy (H) or polysemy (P).

(1) *bark* (of a dog vs. of a tree) *H / P*
(2) *fork* (in a road vs. instrument for eating) *H / P*
(3) *tail* (of a coat vs. of an animal) *H / P*
(4) *steer* (to guide vs. young bull) *H / P*
(5) *lip* (of a jug vs. of a person) *H / P*
(6) *punch* (blow with a fist vs. kind of fruity alcoholic drink) *H / P*

Feedback

(1) H (2) P (3) P (4) H (5) P (6) H

Comment

We will concentrate on clear cases of homonymy and not mention polysemy further.

You will have noticed that it is not always possible to find an exactly synonymous phrase for a given word. For example, in the case of *sage* above, we had to resort to the Latin botanical label, which was, strictly speaking, cheating, since synonymy is a relation between words (and phrases) in the same language. Where exact synonyms are not available, it is possible to indicate different senses of a word, by giving different environments in which the word may be used.

Example

Grass has two senses which are indicated by the following environments:
(a) *Please keep off the grass*
(b) *The informer grassed on his partners-in-crime*

Practice

For each of the following words, give two full sentences which include them and which bring out distinct senses of the word.

(1) *rock* mineral
rock star

(2) *hard* solid
diff.

(3) *file* folder
to diary with a file

Feedback

Here are some possible answers: (1) The ship hit a rock and sank; I will buy an electric guitar and become a rock star (2) This wood is hard; Playing the violin is hard (3) We will open a file for our overseas contracts; I sharpened the scissors with a file

Comment In many cases, a word used in one sense belongs to one part of speech, and used in another sense, it belongs to a different part of speech.

Example *long* in the sense of *yearn* is a verb
and in the sense of *not short* is an adjective

Practice Disambiguate the following ambiguous words simply by giving two or more parts of speech.

(1) *sack* _____ _____

(2) *fast* _____ _____

(3) *flat* _____ _____

Feedback (1) verb vs. noun (2) verb vs. noun vs. adjective vs. adverb (3) noun vs. adjective

Practice Below are four suggested statements of the relationship between ambiguous sentences and ambiguous words. Only one of them is actually correct. Think carefully about them and about actual examples of ambiguous words and sentences and say which statement is correct. Take some time over this exercise before checking your answer.

Statement A
All sentences which contain one or more ambiguous words are ambiguous, and every sentence which contains no ambiguous words is unambiguous.

Statement B
Some sentences which contain ambiguous words are ambiguous while others are not, and some sentences which contain no ambiguous words are ambiguous while others are not.

Statement C
Some sentences which contain ambiguous words are ambiguous while some are not, but all sentences which contain no ambiguous words are unambiguous.

Statement D
All sentences which contain ambiguous words are ambiguous, but some sentences which contain no ambiguous words are also ambiguous while others are not.

Feedback Statement B is the correct one.

Comment We will now go in detail through the reasoning which leads to the conclusion that statement B is the correct one.

Practice

(1) Below are some sentences containing ambiguous words. (The ambiguous words are given in capitals.) In each case say whether the sentence is ambiguous (A) or not ambiguous (NA).

(a) *A KIND young man helped me to CROSS the road* — *A / NA*

(b) *A pike is a KIND of fish* — *A / NA*

(c) *I'm very CROSS with you* — *A / NA*

(2) Your answers to these questions should enable you to eliminate two of the statements A–D above. Which two? _____

Feedback

(1) (a) NA (b) NA (c) NA (2) Statements A and D are shown to be incorrect by these examples.

Comment

This leaves just statements B and C as possibilities. Let us see how we can eliminate one of them.

Practice

For each of the following sentences, say (a) whether the sentence contains any ambiguous words, and (b) whether the sentence is ambiguous.

(1) *I observed John in the garden* — (a) *Yes / No* (b) *Yes / No*

(2) *We had to decide on the bus* — (a) *Yes / No* (b) *Yes / No*

(3) *Fred said that he would pay me on Thursday* — (a) *Yes / No* (b) *Yes / No*

(2) Your answers to these questions should enable you to eliminate either statement B or statement C above. Which one? _____

Feedback

(1) (a) No (b) Yes (2) (a) No (b) Yes (3) (a) No (b) Yes (2) Statement C is eliminated by these examples, which are not compatible with the second half of it.

Comment

This leaves statement B. Of course, the fact that statements A, C and D are wrong does not prove that statement B is right. We still need to test statement B against the linguistic facts. Statement B predicts the existence of four different types of examples, as illustrated in the chart below:

	Ambiguous sentence	Unambiguous sentence
Sentence containing ambiguous words		
Sentence containing no ambiguous words		

Practice Given below are five sentences. Put the numbers (1)–(5) in the chart above.

(1) *Semantics is a subdiscipline of Linguistics*
(2) *Semantics is a branch of the study of language*
(3) *John sawed a rotten branch off the ash tree*
(4) *The drunken visitor rolled up the carpet*
(5) *Cinderella watched the colourful ball*

Feedback

(5)	(2) (3)
(4)	(1)

Definition A sentence which is ambiguous because its words relate to each other in different ways, even though none of the individual words are ambiguous, is STRUCTURALLY (or GRAMMATICALLY) AMBIGUOUS.

Example *The chicken is ready to eat* (and many of the other sentences we have used) is structurally ambiguous.

Definition Any ambiguity resulting from the ambiguity of a word is a LEXICAL AMBIGUITY.

Example *The captain corrected the list* is lexically ambiguous.

Comment Structural ambiguity is basically a question of 'what goes with what' in a sentence, and this can be shown by diagrams of various sorts. We will mention one such diagramming technique, constituency diagrams, which we will present with square brackets around the relevant parts of the sentence (or phrase).

Example The phrase *old men and women* is structurally ambiguous. It is synonymous with *women and old men* and with *old men and old women*. We represent these two senses with square brackets thus:

(1) [*old men*] *and women*

old [*men and women*]

The first diagram indicates that *old* modifies only *men*, and the second indicates that *old* modifies the whole phrase *men and women*.

Comment As you learn more semantics, you will learn in more detail of more accurate ways to represent meaning and, hence, of describing ambiguity. The material in this unit is just a start. Ambiguity of various kinds is never far from the centre of our attention in semantics.

To end this unit, we will mention some things that must not be confused with ambiguity.

Definition A phrase is REFERENTIALLY VERSATILE if it can be used to refer to a wide range of different things or persons.

Example The pronoun *she* can be used to refer to any female person. On a given occasion *she* might be used to refer to Mary, on another occasion to Lucy, etc. but this does NOT mean that *she* is ambiguous, because although it is used to refer to different people this is not a matter of a difference in sense.

Comment We must also mention referential vagueness. Some nouns and adjectives are gradable. Examples are *tall* and *short* (adjectives) and *mountain* and *hill* (nouns). Just as there is no absolute line drawn in the semantics of English between *tall* and *short*, there is no absolute distinction between *mountain* and *hill*. What is referred to on one occasion with *that mountain* might be called *that hill* on another occasion. Hence expressions such as *that hill* and *that mountain* are referentially vague. Referential vagueness is not the same thing as ambiguity.

Summary Binary antonymy, converseness, and gradable antonymy are sense relations between predicates which fit a simple pretheoretical notion of 'oppositeness of meaning'. Multiple incompatibility, though not traditionally thought of as a kind of oppositeness, is formally similar to binary antonymy, the main difference being in the number of terms (i.e. 2 or more than 2) in the system concerned. Contradictoriness is a sense relation between sentences (and propositions), related in an apparently complicated way to the sense relations mentioned above.

Lexical ambiguity depends on homonymy (senses not related) and polysemy (senses related). To show the relationship between ambiguous sentences and ambiguous words we proposed the following statement: some sentences which contain ambiguous words are ambiguous while others are not, and some sentences which contain no ambiguous words are ambiguous while others are not. We then discussed the differences between grammatical ambiguity and lexical ambiguity and suggested ways of representing grammatical ambiguity. Finally we distinguished referential versatility and referential vagueness from ambiguity.

4 Logic

UNIT 12
ABOUT LOGIC

Entry requirements

PROPOSITION (Unit 2), SENSE RELATIONS and SENSE PROPERTIES, especially those of SENTENCES, i.e. ENTAILMENT, PARAPHRASE, AMBIGUITY, ANALYTICITY, and CONTRADICTION. (Units 9–11.)

Entry test

(1) Which of the following correctly distinguishes sentences from propositions? Circle your choice.

(a) A proposition is an act of proposing something, usually performed by uttering some sentence.

(b) A sentence is the abstract representation of a particular meaning whereas a proposition is a string of words expressing that meaning in a particular language.

(c) A proposition is the abstract meaning of a declarative sentence, when that sentence is used to make an assertion.

Consider the following eight sentences:

(a) *John passed the hammer and saw through the window*
(b) *John saw through the window and passed the hammer*
(c) *John passed the hammer and the saw through the window*
(d) *John passed the saw and the hammer through the window*
(e) *John passed the hammer*
(f) *John saw through the window*
(g) *The hammer which John saw was not a hammer*
(h) *A saw is a tool*

(2) Say which of the above sentences is ambiguous _____

(3) Two other sentences in this set are in a paraphrase relationship. Which two? _____

(4) Which sentence is entailed by sentence (d) but does not entail it? _____

(5) Which of the above sentences is analytic? _____

(6) Which of the above sentences is a contradiction? _____

Feedback

(1) (c) (2) (a) (3) (c) and (d) (4) (e) (5) (h) (6) (g)
If you scored at least 5 correct out of 6, continue to the introduction. Otherwise review the relevant unit.

Introduction

Logic is a word that means many things to different people. Many everyday uses of the words *logic* and *logical* could be replaced by expressions such as *reasonable behaviour* and *reasonable.* You may say, for instance, "Sue acted quite logically in locking her door", meaning that Sue had good, well thought-out reasons for doing what she did. We shall use the words *logic* and *logical* in a narrower sense, familiar to semanticists. We give a partial definition of our sense of *logic* below.

Definition (partial)

LOGIC deals with meanings in a language system, not with actual behaviour of any sort. Logic deals most centrally with PROPOSITIONS. The terms 'logic' and 'logical' do not apply directly to UTTERANCES (which are instances of behaviour).

Practice

Using this partial definition, do the following statements use the words *logic*, *logical*, *logically*, and *illogical* in our narrow sense, or not?

(1) It's not logical to want to kill oneself. *Yes / No*

(2) Harry is so illogical: first he says he doesn't want to come, and then he changes his mind. *Yes / No*

(3) The truth of the proposition that Socrates is mortal follows logically from the fact that Socrates is a man and the fact that all men are mortal. *Yes / No*

(4) *Max is not coming* is, logically, the negation of *Max is coming.* *Yes / No*

(5) The logic of Churchill's tactics in the Eastern Mediterranean was quite baffling. *Yes / No*

Feedback

(1) No (2) No (3) Yes (4) Yes (5) No

Comment

There is an important connection between logic (even in our narrow sense) and rational action, but it is wrong to equate the two. Logic is just one contributing factor in rational behaviour. Rational behaviour involves:

(a) goals
(b) assumptions and knowledge about existing states of affairs
(c) calculations, based on these assumptions and knowledge, leading to ways of achieving the goals

Example (of rational behaviour)

Goal: to alleviate my hunger
Assumptions and knowledge:
Hunger is alleviated by eating food.
Cheese is food.
There is a piece of cheese in front of me.
I am able to eat this piece of cheese.

Calculations:

If hunger is alleviated by eating food and cheese is food, then hunger is alleviated by eating cheese.

If hunger is alleviated by eating cheese, then my own hunger would be alleviated by eating this piece of cheese in front of me, and

eating this piece of cheese would alleviate my hunger, and my goal is to alleviate my hunger, so therefore eating this piece of cheese would achieve my goal.

(Rational) action: eating the cheese

Comment

Eating the piece of cheese in such circumstances is an example of entirely rational behaviour. But the use of the word *logic* here restricts the logic to the 'calculations' aspect of this behaviour. The goals, assumptions, knowledge, and final action are in no way logical or illogical, in our sense.

Practice

In the light of this comment:

(1) If the word *cheese* in the above example were replaced throughout by the word *chalk*, would the calculations lead to the conclusion that I should eat a piece of chalk? *Yes / No*

(2) Regardless of whether you think eating a piece of chalk in these circumstances would be rational or not, would there be anything illogical (in the narrow sense) in the conclusion that I should eat a piece of chalk? *Yes / No*

(3) Is the statement that chalk is food in itself logical (L), illogical (I), or neither (N), according to the semanticist's use of these terms? *L / I / N*

(4) Is it logical, illogical or neither to wish to alleviate one's hunger? *L / I / N*

(5) Say I were to calculate thus: If hunger is alleviated by eating cheese and cheese is food, then hunger is not alleviated by eating cheese. Would you say that this calculation is illogical? *Yes / No*

Feedback

(1) Yes (2) No, the calculations are as valid (i.e. logical) for chalk as they are for cheese. (3) N (4) N (5) Yes

Comment

Logic, then, tells us nothing about goals, or assumptions, or actions in themselves. It simply provides rules for calculation which may be used to get a rational being from goals and assumptions to action. There is a close analogy between logic and arithmetic (which is why we have used the word *calculation*).

'Arithmetical fact' does not mean just fact involving numbers in

some way, but rather fact arising from the system of rules defining addition, subtraction, multiplication, and division. A similarity between arithmetic and logic is the unthinkability of alternatives.

Example

'2 + 2 = 5' is unthinkable. We can say the words easily enough, but there is no way that we can put together the concepts behind '2', '+', '=', and '5' so that they fit what '2 + 2 = 5' seems to mean. This is an arithmetical contradiction.

All men are mortal and some men are not mortal is unthinkable in the same way. This is a logical contradiction.

Practice

Given below are a number of sentences. Each one expresses either a logical contradiction or a necessary truth of logic. (Sentences expressing necessary truths of logic are a type of analytic sentence.) Mark each sentence for contradiction (C) or for analytic (A) as appropriate.

(1) *John is here and John is not here* — *C / A*
(2) *Either John is here or John is not here* — *C / A*
(3) *If John is here, John is here* — *C / A*
(4) *If everyone is here, no one isn't here* — *C / A*
(5) *If someone is here, then no one is here* — *C / A*

Feedback

(1) C (2) A (3) A (4) A (5) C

Comment

The concepts of contradiction and analyticity are fundamental to logic, so that logic and the study of sense relations to a large extent share the same outlook and goals. But there is a difference of emphasis. The above examples are all centred around a small set of words, namely *and*, *or*, *not*, *if*, *every*, and *some*. It is the concepts behind these words that logicians have singled out for special attention. These words are thought of as belonging to a small set constituting the logical vocabulary. We will try to see what is special about these words, what sets them apart from other words. First we will compare them with the familiar semantic word-types, names and predicates, and with referring expressions.

Practice

(1) Names are referring expressions, i.e. can be used to pick out individuals in the world. Can the word *and* (in normal English) be used in this way? — *Yes / No*
(2) Can the word *or* be used as a referring expression, to pick out some individual? — *Yes / No*
(3) Is *not* a referring expression? — *Yes / No*
(4) Predicates express relations between individuals (e.g. *under*) or properties of individuals (e.g. *asleep*). Can

and be used to express a property of an individual (e.g. *John is and*, or *John ands*)? *Yes / No*

(5) Can *and* be used to express a relation between individuals, as the predicate *under* does? (For example, is *John and Mary* a sentence telling us of some relationship between John and Mary? Think whether *John and Mary* (taken out of context) actually tells you anything about John and Mary.) *Yes / No*

(6) Is *and* a predicate? *Yes / No*

(7) Is *or* a predicate? *Yes / No*

(8) Is *not* a predicate? Does *Not John* or *John is not* (again taken out of context) tell you anything at all about John? *Yes / No*

Feedback

(1) No (2) No (3) No (4) No (5) No – *and* by itself tells you nothing about the relation between John and Mary; some predicate is needed before any information is actually conveyed, e.g. *John and Mary are asleep*, which attributes the same property to the two individuals, or *John and Mary are married*, which expresses a relationship between the two individuals. But the word *and* by itself does not express either a property or a relation. (6) No (7) No (8) No – as with *and* and *or*, some predicate is needed before *Not John* or *John is not* can be meaningful.

Comment

Words such as *and*, *or*, and *not* are not predicates and cannot be used as referring expressions. Logic calls such words connectives. The kind of meaning that is involved is structural, i.e. it deals with the whole structures of propositions, rather than with individual items within propositions, such as names and predicates. It is possible to talk of the extensions (or, more loosely, the denotations) of names and predicates taken in isolation, but it is not possible to imagine extensions or denotations for words such as *and*, *or*, *if*, and *not*, taken in isolation. It follows from the special structural nature of the meanings of connectives that they are topic-free and hence more basic, or general. A topic-free meaning is one that can be involved in discourse or conversation on any topic whatever, without restriction.

Although one may, of course, take a legitimate interest in the meanings of individual predicates such as *red*, *round*, or *ruthless* (as linguists and dictionary-writers do), an understanding of the meanings of such basic words as *and*, *if*, *or*, and *not* is more central to the enterprise of semantics, the study of meaning. An early book on logic was called *The Laws of Thought*, and this is the view we take of the subject. Logic analyses the basis of so-called logical thought. (Propositions can be grasped by the mind, i.e. they can be the objects of thought.) Thoughts are notoriously difficult things to talk about, since we can't physically experience them; correspondingly, it is difficult to talk clearly and

systematically about propositions, as the logician tries to do. We will bring out the nature of some of these difficulties in practice.

Practice

(1) Have we, in this book, adopted a standardized way of representing sentences (as opposed to, say, utterances)? *Yes / No*

(2) And have we yet adopted any standardized way of representing propositions? *Yes / No*

(3) Can a declarative sentence be ambiguous? *Yes / No*

(4) Using the terms 'proposition' and 'sentence' as we have, if a declarative sentence is two-ways ambiguous, how many different propositions correspond to it? _____

(5) Is it desirable, in trying to talk clearly about propositions, to have some way of showing which propositions we are talking about? *Yes / No*

(6) What problem would be encountered if one adopted, say, sentences printed in a bold typeface as a method for representing propositions?

_____

Feedback

(1) Yes, italic typeface (2) No (3) Yes (4) Two (5) Yes (6) There would be no way, with this proposal, or distinguishing the different propositions involved in the case of ambiguous sentences.

Comment

The initial difficulty in talking about propositions is that we need to invent a way of representing them unambiguously. One needs a notation that will provide, for example, two clearly different representations for the two different meanings of a two-ways ambiguous sentence, and three different representations in the case of a three-ways ambiguous sentence, and so on.

In the units that follow, we will introduce a logical notation, a specially developed way of representing propositions unambiguously. The notation will include a few special symbols, for example, &, V, ~, and you will learn some rules for putting logical formulae together correctly, using these symbols. (To set such logical formulae off clearly from the rest of the text, they will be printed in bold type, when they appear within paragraphs – as do &, V and ~ above.)

Example

John and Mary are married is ambiguous, being paraphrasable either as:
John and Mary are married to each other or as
John is married to someone and Mary is married to someone
In logical notation, the first interpretation (proposition) here could be represented by the formula:
(j MARRIED TO m) & (m MARRIED TO j)

and the second interpretation would be represented by the formula:
(∃ x (j MARRIED TO x)) & (∃ y (m MARRIED TO y))

Comment

Do not try at this stage to work out exactly how this notation applies to the examples just given. The notation will be explained gradually and in detail in the following units.

In addition to providing a means for representing the various meanings of ambiguous sentences, logical notation brings another advantage, that its formulae can be used much more systematically than ordinary language sentences for making the calculations that we mentioned at the beginning of this unit. We illustrate below some of the difficulties that arise when trying to state the rules for logical calculations in terms of ordinary language sentences.

Practice

(1) Do the following two sentences have parallel grammatical structures?
Stan and Oliver worked conscientiously
Stan and Oliver worked together — *Yes / No*

(2) Does the first of these two sentences entail *Stan worked conscientiously*? — *Yes / No*

(3) Say we try to set up a 'rule of logical calculation' working on ordinary English sentences as follows: a sentence of the form noun-*and*-noun-verb-adverb entails a sentence of the form noun-verb-adverb (keeping the same nouns, verbs and adverbs, or course); would this rule actually give the correct result in the case of *Stan and Oliver worked conscientiously*? — *Yes / No*

(4) Does the sentence *Stan and Oliver worked together* entail *Stan worked together*? — *Yes / No*

(5) Would the calculation rule given in question (3) predict that *Stan and Oliver worked together* entails *Stan worked together*? (Assume that *together* is an adverb.) — *Yes / No*

(6) Would the rule given in question (3) actually make a correct prediction in this case? — *Yes / No*

Feedback

(1) Yes (2) Yes (3) Yes (4) No, in fact *Stan worked together* doesn't make literal sense. (5) Yes (6) No

Comment

The problem is that pairs of sentences with similar or identical grammatical forms may sometimes have different logical forms. In order to state rules of calculation, or 'rules of inference' completely systematically, these rules have to work on representations of the logical form of sentences, rather than on the grammatical forms of the sentences themselves. Here are some examples:

Practice

(1) Does the truth of the third sentence below follow necessarily from the truth of the first two?
A plant normally gives off oxygen
A geranium is a plant therefore
A geranium normally gives off oxygen *Yes / No*

(2) Does the truth of the third sentence below follow necessarily from the truth of the first two?
A plant suddenly fell off the window-sill
A geranium is a plant therefore
A geranium suddenly fell off the window-sill *Yes / No*

(3) Are the two trios of sentences above of similar grammatical form? *Yes / No*

(4) The crucial difference between the two cases above lies in their first sentences. In terms of distinctions met earlier (Units 4 and 6), is *A plant gives off oxygen* a generic sentence (G), an equative sentence (E), or neither (N)? *G / E / N*

(5) Is *A plant fell off the window-sill* a generic sentence, an equative sentence, or neither? *G / E / N*

Feedback

(1) Yes (2) No (3) Yes (4) G (5) N

Comment

Generic sentences have a different logical form from non-generic sentences. The two sentence types express logically different types of proposition. They would therefore be represented by different types of formulae in logical notation and the logical rules of inference working on these formulae would arrive at different conclusions in the two cases, as is appropriate.

An analogy may again be made between logic and arithmetic. The Arabic notation used in arithmetic is simple, useful, and familiar. Logical notation is equally simple, equally useful in its own sphere, and can become equally familiar with relatively little effort or difficulty. As with arithmetic, learning to use the system sharpens up the mind. In particular, learning to translate ordinary language sentences into appropriate logical formulae is a very good exercise to develop precise thinking about the meanings of sentences. (Of course, logic does not involve any specific numerical ability.)

A system of logic, like a system of arithmetic, consists of two things:

a notation (in effect, a definition of all the possible proper formulae in the system)

a set of rules (for 'calculating' with the formulae in various ways)

To conclude this unit, we will give some informal examples of the kind

of rules of calculation that it is necessary to include (or to exclude) in a logical system which captures the essence of rational human thought.

Practice

Given below are a number of arguments, or logical calculations. Some of these actually reach logically invalid conclusions, and some of the arguments are valid. Mark each argument invalid (I) or valid (V), as appropriate.

(1) If John bought that house, he must have got a loan from the bank. He did buy that house, so therefore he did get a loan from the bank. *I / V*

(2) If John bought that house, he must have got a loan from the bank. He did buy the house, so therefore he didn't get a loan from the bank. *I / V*

(3) If John bought that house, he must have got a loan from the bank. He didn't get a loan from the bank, so therefore he didn't buy that house. *I / V*

(4) If John bought that house, he must have got a loan from the bank. He didn't buy that house, so therefore he must not have got a loan from the bank. *I / V*

(5) John is a Scot, and all Scots are drunkards, so John is a drunkard. *I / V*

(6) No one is answering the phone at Gary's house, so he must be at home, because whenever Gary's at home, he never answers the phone. *I / V*

Feedback

(1) V (2) I (3) V (4) I (John could have got a loan from the bank even though he didn't buy that house.) (5) V (6) I

Comment

The cases of valid argument here are examples of basic rules of logical inference. The cases of invalid argument are examples of some well-known logical fallacies. Obviously, a logical system should not permit any fallacious arguments. The first example in the above practice makes use of a logical rule generally known by the Latin name 'modus ponens'.

Rule

MODUS PONENS is a rule stating that if a proposition P entails a proposition Q, and P is true, then Q is true. Put in the form of a diagram, Modus Ponens looks like this:

$$\begin{array}{l} P \rightarrow Q \\ P \\ \hline Q \end{array}$$

Comment

The formulae above the line in this diagram represent the propositions which are the premisses of the argument, and the letter below the line

represents the proposition which is the conclusion of the argument. Note that this logical rule only mentions whole propositions. It does not go into details concerning the various parts of propositions, e.g. it does not mention names or predicates. It is a very simple rule. In the units that follow, we will present further logical rules, so that a more complete picture can be given of the whole process of rational calculation in interesting cases.

Summary

Logic deals with meanings in a language system (i.e. with propositions, etc.), not with actual behaviour, although logical calculations are an ingredient of any rational behaviour. A system for describing logical thinking contains a notation for representing propositions unambiguously and rules of inference defining how propositions go together to make up valid arguments.

Because logic deals with such very basic aspects of thought and reasoning, it can sometimes seem as if it is 'stating the obvious'. The thing to remember is that one is not, in the end, interested in individual particular examples of correct logical argument (for, taken individually, such examples are usually very obvious and trivial), but rather in describing the whole system of logical inference, i.e. one is trying to build up a comprehensive account of all logical reasoning, from which the facts about the individual examples will follow automatically. One only looks at individual examples in order to check that the descriptive system that one is building does indeed match the facts.

Logic, with its emphasis on absolute precision, has a fascination for students who enjoy a mental discipline. Thus, in addition to its contribution to our understanding of the 'Laws of Thought', it can be good fun.

BCUIASVICENTE

UNIT 13
A NOTATION FOR SIMPLE PROPOSITIONS

Entry requirements PROPOSITION (Unit 2), REFERRING EXPRESSION (Unit 4) and PREDICATE (Unit 5). It will also help if you have gone through the previous unit (Unit 12 'About logic'). Take the entry test below before continuing with this unit.

Entry test

(1) Are proper names referring expressions (R) or predicates (P)? *R / P*

(2) Circle the proper names in the following list:
Confucius, Birmingham, Japan, Scott, prophet, city, nation, author

(3) Bracket the predicates in the above list.

(4) Circle the two-place predicates in the list below:
attack (verb), *die* (verb), *father, between, put, love* (verb), *in, cat, elephant, forget*

(5) Can a proposition be ambiguous? *Yes / No*

(6) Do sentences with similar grammatical form have similar logical form? *Always / Sometimes / Never*

Feedback (1) R (2) *Confucius, Birmingham, Japan, Scott* (3) *prophet, city, nation, author* (4) *attack, father, love, in, forget* (5) No (6) sometimes, but not always

If you got at least 5 out of 6 correct, continue to the introduction. Otherwise, review the relevant unit.

Introduction Logic provides a notation for unambiguously representing the essentials of propositions. Logic has in fact been extremely selective in the parts of language it has dealt with; but the parts it has dealt with it has treated in great depth.

Comment The notation we adopt here is closer to English, and therefore easier for beginners to handle, than the rather more technical notations found in some logic books and generally in the advanced literature of logic.

We assume that simple propositions, like simple sentences, have just one predicator (recall Unit 5), which we write in CAPITAL LETTERS. The arguments of the predicator we represent by single lower-case letters, putting one of these letters before the predicator (like the subject of an English sentence) and the others (if there are others) after the

predicator, usually in the preferred English word order. Anything that is not a predicator or a referring expression is simply omitted.

Example

Abraham died would be represented by the formula a **DIE**;
Fido is a dog by f **DOG**;
Ted loves Alice by t **LOVE** a,
Phil introduced Mary to Jack by p **INTRODUCE** m j

Practice

Translate the following into this simple notation:

(1) *Arthur dreamed* _____

(2) *Bill gulped* _____

(3) *Charlie swore* _____

(4) *Patrick cursed* _____

(5) *Ben cycles* _____

Feedback

(1) a DREAM (2) b GULP (3) c SWEAR (4) p CURSE (5) b CYCLE

Comment

These formulae are very bare, stripped down to nothing but names and predicators. The reasons for eliminating elements such as forms of the verb *be*, articles (*a*, *the*), tense markers (past, present), and certain prepositions (e.g. *to* in *Phil introduced Mary to Jack*) are partly a matter of serious principle and partly a matter of convenience. The most serious principle involved is the traditional concentration of logic on truth.

Articles, *a* and *the*, do not affect the truth of the propositions expressed by simple sentences. Accordingly, they are simply omitted from the relatively basic logical formulae we are dealing with here. This is an example of the omission of material from logical formulae on principled grounds. In the case of some, but not all, prepositions, e.g. *at*, *in*, *on*, *under*, there are similar principled reasons for not including them in logical formulae.

Practice

(1) Are the following sentences paraphrases of each other?
Margaret is looking for Billy
Margaret is looking after Billy
Margaret is looking at Billy *Yes / No*

(2) Are the following sentences paraphrases of each other?
Sidney put his hat under the table
Sidney put his hat on the table
Sidney put his hat beside the table *Yes / No*

(3) Do the prepositions in questions (2) and (3) contribute to the senses of the sentences concerned? *Yes / No*

(4) Are the following sentences paraphrases?
Humphrey envies Maurice
Humphrey is envious of Maurice *Yes / No*

(5) In the second sentence above, could *of* be replaced by any other preposition, thus giving the sentence a different sense? *Yes / No*

(6) In the sentence *Teddy is the uncle of Franklin*, could the preposition *of* be replaced by any other preposition, thus changing the sense of the sentence? *Yes / No*

(7) In *Charlene is crazy about horses* could the preposition *about* be replaced by any other preposition, thus changing the sense of the sentence? *Yes / No*

Feedback (1) No (2) No (3) Yes (4) Yes (5) No (6) No (7) No

Comment Some prepositions contribute substantially to the sense of the sentence they occur in, e.g. *Sidney put his hat ON the table*, whereas in other cases, prepositions seem merely to be required by the grammar of the language when certain verbs and adjectives are used, e.g. *present someone WITH something*, or *be envious OF someone*. In these cases, the verb (e.g. *present*) or the adjective (e.g. *envious*) can be regarded as making the crucial contribution to the sense of the sentence, and the preposition can be disregarded from the point of view of the logic of the proposition involved.

Prepositions which make no contribution to the sense of a sentence are omitted from the logical formulae representing the proposition concerned. Prepositions which do make a contribution, on the other hand, must be included in logical formulae for propositions.

Example

Winston is a nephew of Randolph	w NEPHEW r
Stanley is crazy about Beethoven	s CRAZY b
Ellen is envious of James	e ENVIOUS j
Margaret is looking for Billy	m LOOK-FOR b
Margaret is looking at Billy	m LOOK-AT b
Walter is beside Harriet	w BESIDE h

Comment In effect, we treat expressions like *look for*, *look at*, *look after* as single predicates. This is natural, as many such expressions are indeed synonymous with single-word predicates, e.g. *seek*, *regard*, *supervise*.

Practice Write formulae for the following:

(1) *Freda is shorter than Ellen* _____

(2) *Gill is proud of Keith* _____

(3) *Ireland is to the west of Scotland* _____

(4) *Dublin is the capital of Eire* _____

Feedback (1) f SHORTER e (2) g PROUD k (3) i WEST s (4) d CAPITAL e

Comment Tense (e.g. past, present) is not represented in our logical formulae, and neither is any form of the verb *be*. The omission of tense is actually not justifiable on the grounds that tense does not contribute to the sense of a sentence.

Practice Are the following pairs of sentences paraphrases?

(1) *It's raining*
It was raining *Yes / No*

(2) *Fred is going to Madrid*
Fred went to Madrid *Yes / No*

(3) *Charles is very angry*
Charles was very angry *Yes / No*

Feedback (1) No (2) No (3) No

Comment We omit any indication of tense from our logical formulae here for the quite arbitrary reason that a logic for tenses has only recently been developed, and it involves a number of complications which would be out of place in an elementary text such as this. In a full logical theory, tenses (and any other indications of time) must be dealt with.

Now, given that we are not representing tense in any way in our logical formulae, is there any need to include anything corresponding to the various forms of the verb *be* found in simple English sentences? Recall the distinction between equative and non-equative sentences (Unit 4).

Practice (1) Are the following sentences equative (E) or non-equative (N)?

(a) *Clark Kent is Superman* *E / N*
(b) *Superman is Clark Kent* *E / N*
(c) *Clark Kent is mild-mannered* *E / N*
(d) *Clark Kent is a reporter* *E / N*

(2) In which of the above sentences did a form of the verb *be* express the IDENTITY predicate? _____

(3) Does the word *is* in the sentences carry the information 'present tense'? *Yes / No*

(4) In sentence (c) above, does the word *is*, besides carrying 'present tense', actually make any contribution to the sense of the sentence in addition to that made by the referring expression *Clark Kent* and the predicate *mild-mannered*? *Yes / No*

(5) In sentence (d) above, does the word *is*, besides carrying the information 'present tense', make any contribution to the sense of the sentence not already made by either *Clark Kent* or *reporter*? *Yes / No*

Feedback (1) (a) E (b) E (c) N (d) N (2) sentences (a) and (b) (3) Yes (4) No (5) No

Comment Besides its use as a 'carrier' of tense, the verb *be* sometimes expresses the identity predicate (i.e. the predicate relating the referents of two referring expressions in an equative sentence), and sometimes makes no contribution to the sense of a sentence at all. In our logical formulae, we will represent the identity predicate with an 'equals' sign =, and we will simply omit anything corresponding to any other use of the verb *be*.

Example

Clark Kent is Superman	ck = s
Clark Kent is a reporter	ck REPORTER

Practice Write logical formulae for the following, using = to represent the identity predicate where appropriate. Where it is useful, use sequences of lower-case letters for names, e.g. dj for Dr Jekyll.

(1) *Dr Jekyll was a gentleman* _____

(2) *Mr Hyde was a villain* _____

(3) *Dr Jekyll was Mr Hyde* _____

(4) *Jack the Ripper was the Duke of Clarence* _____

(5) *Mary Clark was a sister of Clark Kent* _____

Feedback (1) dj GENTLEMAN (2) mh VILLAIN (3) dj = mh (4) jr = dc (5) mc SISTER ck

Comment We have been using lower-case letters (or sequences of letters), such as s and ck, as names in logical formulae. We assume here that the semantics of names is very straightforward, indeed nothing more than a direct

association between the name itself and its referent in the real or imaginary world (that is, the universe of discourse assumed in connection with any particular example). (Modern logicians have proposed that the semantics of names is in fact more complicated than this, but we adopt a simple version of the logic of names here.) Logical formulae should be unambiguous, and in a well worked out system of notation, no two different individuals should have the same name. We have, for convenience, ignored this detail. We have, for instance, used the same name, b, in our formulae for both Bill and Beethoven. This will cause no problems in this text. Simply assume, for each particular example, that each logical name identifies an individual unambiguously. But remember that a single individual can have more than one name, even in a logical system (e.g. ck (Clark Kent) and s (Superman)). The existence of different names for the same individual is just what makes the identity predicate necessary.

Logical formulae for simple propositions are very simple in structure. It is important to adhere to this simple structure, as it embodies a strict definition of the structure of simple propositions. The definition is as follows:

Definition

Every SIMPLE proposition is representable by a single PREDICATOR, drawn from the predicates in the language, and a number of ARGUMENTS, drawn from the names in the language. This implies, among other things, that no formula for a simple proposition can have TWO (or more) predicators, and it cannot have anything which is neither a predicate nor a name.

Example

j LOVE m is a well-formed formula for a simple proposition

j m is not a well-formed formula, because it contains no predicator

j IDOLIZE ADORE m is not a well-formed formula for a simple proposition, because it contains two predicators

j and h LOVE m is not a well-formed formula for a simple proposition because it contains something ('and') which is neither a predicator nor a name

Practice

Are the following formulae well-formed for simple propositions?

(1) j SEND h m *Yes / No*
(2) j SEND BOOK m *Yes / No*
(3) j UNCLE f *Yes / No*
(4) j BROTHER f FATHER *Yes / No*

Feedback

(1) Yes (2) No (3) Yes (4) No

Comment

The implication of this is that many apparently simple sentences correspond to propositions which are not logically simple. Indeed we would claim that, for example, *John met Harry* is simpler in its logical structure than *John met a man*, because the latter contains a referring expression in which a predicate is embedded (see Unit 6). We shall not develop a notation in this book for representing referring expressions which contain predicates embedded in them, like *the man in the corner*. Consequently, all the referring expressions in our examples will be either proper names like *John* and *Harry* or pronouns like *she*, *him*, *itself*.

Logical notation is no more illuminating than Chinese to a person who knows neither. So what is the advantage of developing a new 'language', i.e. logical notation, to explain meaning, if one only has then to go on and explain what IT means? The answer is that logical notation has been designed to be perspicuous. Not only are logical formulae unambiguous, but also the structure of each formula reflects, in a direct and unconfused way, the type of situation in the world that it describes. The idea behind logical notation is that each different type of situation in the real world should be described by a different type of formula. Natural languages, such as English and Chinese, often use sentences of the same grammatical type to describe quite different situations.

Practice

(1) Can a generic sentence in English have the grammatical structure 'subject-verb-object'? *Yes / No*

(2) Can a non-generic sentence in English have the grammatical structure 'subject-verb-object'? *Yes / No*

(3) Do the following sentences all describe the same situation? (They may emphasize different aspects of the situation, but is it the same situation that is being described in all cases?) *Yes / No*

Lightning struck the house
The house was struck by lightning
What struck the house was lightning
What was struck by lightning was the house
It was the house that was struck by lightning
What happened was that lightning struck the house

Feedback

(1) Yes (2) Yes (3) Yes, and one can think of many more paraphrases beside these.

Comment

Logical notation provides one type of formula (which we shall not meet here) for generic sentences, and a different type of formula for non-generic sentences. One can see from the formula itself what type of

meaning it has. One does not need to appeal to the context, as one often does in interpreting a sentence in a natural language. Logical notation is austere, in that it does not provide the rich variety of structures seen in question (3) above. Corresponding to each of these sentences, and all their other paraphrases, there would only be one formula in logical notation. There are no stylistic variants of formulae in logic.

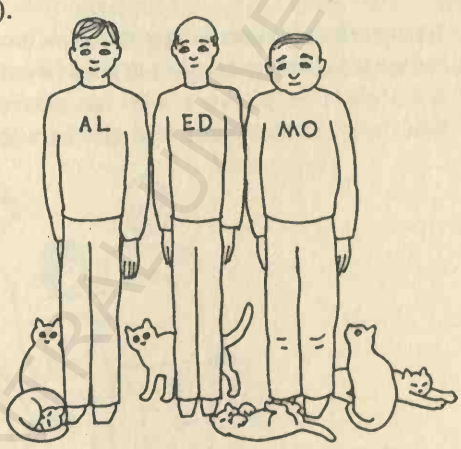
What type of situation in the world is described by the type of formula which consists of a name followed by a one-place predicate? (This is the simplest type of logical formula.) The answer draws on the notions of referent (Unit 3) and extension (Unit 9).

Rule

A simple formula consisting of a name and a one-place predicate is true of a situation in which the referent of the name is a member of the extension of the predicate.

Example

Below is a picture of a tiny fragment of a universe of discourse (a situation). In the picture we have labelled individuals with their names (*Al*, *Ed*, *Mo*, etc.).



The formula ed STAND (corresponding to the sentence *Ed is standing*) is true of this situation.

The formula mo CAT is false of this situation.

Practice

In relation to the situation depicted above, are the following formulae true (T) or false (F)?

(1) al MAN *T / F*
(2) al WOMAN *T / F*
(3) al STAND *T / F*
(4) mo SLEEP *T / F*
(5) ed SIT *T / F*

Feedback

(1) T (2) F (3) T (4) F (5) F

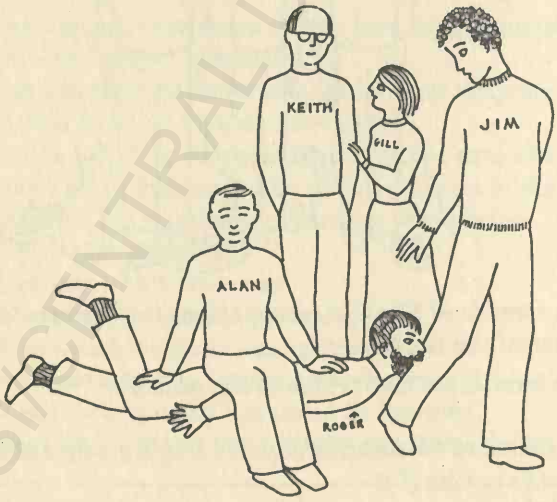
Comment

A system of logic must have its own 'semantics', a set of principles relating its formulae to the situations they describe. The rule given above for simple formulae consisting of a name and a one-place predicate is part of such a set of principles, a 'semantics for logic'. Logicians use the term 'semantics' in a much narrower way than we do in this book; for a logician, the semantics of logic consists only in relating (parts of) formulae to entities outside the notational system, e.g. to referents and extensions.

It is very important to have this extensional component in a logical system, as it provides a constant reminder that logical formulae can only be fully understood to the extent that they are systematically related to some world (universe of discourse) external to the notational system itself. We shall not give explicit rules (such as the one above) for relating simple formulae with two-place and three-place predicates to the situations they describe. We shall rely on the reader's own intuitive grasp of the meanings of such predicates. Apply your intuitions to the practice below.

Practice

Look at the situation shown in this picture and say whether the formulae below are true (T) or false (F) of this situation. Assume that the labels in the picture are the names of the individuals involved, and that the predicates in the formulae have their usual English meanings.



(1) r BITE j	*T / F*	(5) g BETWEEN k a	*T / F*
(2) g TOUCH k	*T / F*	(6) k BETWEEN g a	*T / F*
(3) a ON r	*T / F*	(7) k BESIDE g	*T / F*
(4) r UNDER a	*T / F*	(8) k UNDER g	*T / F*

Feedback (1) T (2) T (3) T (4) T (5) F (6) T (7) T (8) F

Comment The assignment of the truth values T (for 'true') and F (for 'false') is intuitively most straightforward in the case of simple propositions. In subsequent units, we shall describe how these values are used in 'calculating' the truth values of more complex propositions.

Summary We have presented a logical notation for simple propositions. A well-formed formula for a simple proposition contains a single predicator, drawn from the predicates in the language, and a number of arguments, drawn from the names in the language. The notation we have given contains no elements corresponding to articles such as *a* and *the*, certain prepositions, and certain instances of the verb *be*, as these make no contribution to the truth conditions of the sentences containing them. We have also, for convenience only, omitted any representation of tense in our logical formulae.

The introduction of a notation for propositions (to be refined in subsequent units) fills a gap left empty since Unit 2, where we introduced a way of representing sentences and utterances, but not propositions. We now have (the beginnings of) a way of representing items at all three levels:

Utterance	Sentence	Proposition
"Jesus wept"	*Jesus wept*	j WEEP

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UNIT 14
CONNECTIVES: *AND* AND *OR*

Entry requirements

A good understanding of the preceding unit. If you are confident that you grasped the main points of the previous unit, take the entry test below. Otherwise, review Unit 13.

Entry test

(1) One of the following statements is correct, and two are incorrect. Which one is correct? Circle your choice.
   (a) A sentence can be thought of as the meaning of a proposition.
   (b) A formula such as b RUN represents a simple proposition.
   (c) Utterances never express propositions.

(2) Two of the sentences below express simple propositions and two express complex propositions for which no notation has been presented. Write down formulae for the two simple propositions.

   (a) *Nixon resigned* _____

   (b) *Pat and her husband bought a chicken ranch* _____

   (c) *Khomeini thwarted Carter* _____

   (d) *If Maggie wins again, I'm emigrating* _____

(3) Does logical analysis concentrate on considerations of the truth of propositions?

(4) Which of the following statements correctly expresses how the simple logical formula j MAN is to be interpreted in relation to the world which is its assumed universe of discourse?
   (a) The extension of the predicate MAN is a member of the extension of the name j.
   (b) The individual named j is a member of the extension of the predicate MAN.
   (c) The extension of the name j is identical to the extension of the predicate MAN.

Feedback

(1) (b) (It seems reasonable to say that utterances can express propositions, although in a sense indirectly, via the act of assertion – see Units 2 and 22)
(2) (a) n RESIGN (c) k THWART c (3) Yes (4) (b)
If you got this test completely right, or only got part of one question wrong, continue to the introduction. Otherwise, review Unit 13.

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Introduction The English words *and* and *or* correspond (roughly) to logical connectives. Connectives provide a way of joining simple propositions to form complex propositions. A logical analysis must state exactly how joining propositions by means of a connective affects the truth of the complex propositions so formed. We start with the connective corresponding to *and*, firstly introducing a notation for complex propositions formed with this connective.

Rule Any number of individual wellformed formulae can be placed in a sequence with the symbol & between each adjacent pair in the sequence: the result is a complex wellformed formula.

Example Take the three simple formulae:

c COME g	(*Caesar came to Gaul*)
c SEE g	(*Caesar saw Gaul*)
c CONQUER g	(*Caesar conquered Gaul*)

From these, a single complex formula can be formed:

(c COME g) & (c SEE g) & (c CONQUER g)

Comment The parentheses help visually to make the structure of the formula clear. Parentheses are not absolutely necessary in this case, although we shall see cases where parentheses are necessary for ensuring that logical formulae are unambiguous. Only formulae for whole propositions can be connected with &. Predicates and names cannot be connected with &.

Practice (1) Suggest an English translation for: j TALL & m SMALL.

---

(2) Translate the following into logical notation:

(a) *Andy entered and Mary left*

(b) *John loves Mary and Mary loves Bill*

(c) *John and Mary are Irish*

Feedback (1) E.g. *John is tall and Mary is small* (2) (a) a ENTER & m LEAVE (b) j LOVE m & m LOVE b (c) j IRISH & m IRISH

Comment Sometimes English can express a compound proposition in an apparently simple sentence.

Example *Adolfo and Benito are Italian* would be represented by the complex formula a **ITALIAN** & b **ITALIAN**. This brings out clearly the fact that it is a paraphrase of *Adolfo is Italian and Benito is Italian*. (Again, a & b **ITALIAN** would not be a wellformed formula, because only propositions can be conjoined with &.)

Practice Write logical formulae for the following (to avoid confusion, use ad as your logical name for Adam and ab as your logical name for Abel):

(1) *Adam delved and Eve span*

_____

(2) *God created Adam and Eve*

_____

(3) *Adam and Eve are both parents of Cain*

_____

(4) *Eve bore Cain and Abel*

_____

(5) *Cain attacked and slew Abel*

_____

Feedback (1) ad DELVE & e SPIN (2) g CREATE ad & g CREATE e (3) ad PARENT c & e PARENT c (4) e BEAR c & e BEAR ab (5) c ATTACK ab & c SLAY ab

Comment What you have been doing above is called 'unpacking' the meanings of apparently simple sentences. In examples (1)–(5) the meaning of each sentence is a conjunction of two simple propositions. The logical symbol &, corresponding roughly to English *and*, expresses the logical conjunction of propositions. Not all simple sentences can have their meanings unpacked in exactly the same way as examples (1)–(5).

Practice Consider *Adam and Eve are a happy couple.*

(1) Does *Adam is a happy couple* make sense? *Yes / No*

(2) Does *Eve is a happy couple* make sense? *Yes / No*

Feedback (1) No (2) No

Comment This illustrates that not all English sentences with *and* involve the logical conjunction of propositions, expressed by &.

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An analysis of this fact would involve going into the meaning of the predicate *couple*. We will not pursue such problems here.

We consider next what rules of inference can be formulated involving formulae containing the connective &.

Practice

(1) Is *God punished Adam and Eve* a paraphrase of *God punished Eve and Adam*? *Yes / No*

(2) Are the logical formulae for the above equivalent, i.e. is g PUNISH a & g PUNISH e equivalent to g PUNISH e & g PUNISH a? *Yes / No*

Feedback

(1) Yes: it might appear as if there was a difference in the temporal order of punishment, e.g. Adam before Eve. However neither sentence necessarily implies a temporal order. (2) Yes

Comment

We can say that g PUNISH a & g PUNISH e and g PUNISH e & g PUNISH a are equivalent. This equivalence follows from a general rule of inference stating that from the conjunction of two propositions in a given order one can infer the conjunction of the same two propositions in the opposite order. This rule of inference, called 'Commutativity of Conjunction' is given in the form of a diagram below. In this diagram p and q are variables ranging over propositions, that is, p and q stand for any propositions one may think of.

Rule

Commutativity of conjunction:

p & q (premiss)

---

q & p (conclusion)

Comment

If it should seem to you that this rule is merely a statement of the obvious, you are right. Remember that one of the goals of logic is to describe explicitly the fundamental 'Laws of Thought'. The logician, like the mountaineer who climbs mountains, describes extremely basic rules of inference such as this 'because they are there'. Notice that, because the premiss and the conclusion in this rule are exact mirror images of each other, the conclusion (q & p) can be 'fed into' the rule as the premiss, in which case the original premiss (p & q) will 'emerge' as the conclusion. This complete interchangeability of premiss and conclusion amounts to their equivalence. The relationship between formulae and propositions can be seen in a way somewhat parallel to the relationship between names and their referents. We shall say that equivalent formulae actually stand for the same proposition, just as different (though equivalent) names stand for the same individual. (The

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rule of commutativity of conjunction demands the postulation of some additional principle to the effect that temporally ordered events are most helpfully described in an order which reflects the order of their occurrence. This seems a quite natural principle.)

There are several other, equally obvious, rules of inference involving logical conjunction. In the practice below, answer the questions by trying to think whether the rules given really do describe your own understanding of the meaning of *and*.

Practice

Some of the rules of inference proposed below are correct, and some are incorrect. Say which are correct (C) and which incorrect (I).

(1) p (premisses)
q
---
p & q (conclusion) *C / I*

(2) p & q (premiss)
---
p (conclusion) *C / I*

(3) p (premiss)
---
p & q (conclusion) *C / I*

Feedback

(1) C (2) C (3) I

Comment

Rule (3) above is incorrect, because, for example, one cannot draw the conclusion that John and Mary are here simply from the premiss that John is here. On the other hand, rule (2) above is correct because one can legitimately conclude, for example, that John is here from the premiss that John and Mary are here.

Formulating correct rules of inference like this is one way of specifying the meaning of the logical connective &, and hence indirectly (and approximately) of the English word *and*, which corresponds approximately to it. To the extent that logical & corresponds with English *and*, valid rules of inference such as (2) and the rule of Commutativity of Conjunction can be seen as describing very general entailment relations involving sentences containing *and*.

Practice

Given below are pairs consisting of a sentence and a rule of inference. Using the given sentence as a premiss, write down the conclusion warranted by the given rule of inference. We have done the first one for you.

(1) *Melanie is pregnant and Mike is in Belgium* $\frac{p \,\&\, q}{q \,\&\, p}$

Mike is in Belgium and Melanie is pregnant _ _ _ _ _ _ _

(2) *Lorna left and Bill stayed* p & q / p

(3) *Frances sang and Harry tapdanced* p & q / q

(4) Now, what is the sense relation that holds between each of the sentences given above and the answer you have written under it? _____

Feedback (2) Lorna left (3) Harry tapdanced (4) entailment

Comment This establishes how logical rules of inference can be seen to play a part in the semanticist's overall task of specifying all the sense relations that hold between items (words and sentences) in a language. The rules of inference so far given probably seem trivial: indeed they do not do an impressive amount of work. But as we proceed we shall build up a larger set of inference rules, involving other logical connectives, and other sorts of logical element. Taken as a whole, the entire system of inference may escape the charge of triviality. (We shall also, later in this unit, give a completely different method for describing the meanings of the logical connectives.)

The joining of propositions by the logical connective & is called 'conjunction'. Next we will deal with the joining of propositions by the logical connective V, corresponding to English *or*. This is called 'disjunction'. (The letter V can be thought of as standing for the Latin *vel*, meaning 'or'.)

Rule Any number of wellformed formulae can be placed in a sequence with the symbol V between each adjacent pair in the sequence: the result is a complex wellformed formula.

Example h HERE (*Harry is here*)
c DUTCHMAN (*Charlie is a Dutchman*)
From these, a single complex formula can be formed:
(h HERE) V (c DUTCHMAN) (*Harry is here or Charlie is a Dutchman*)

Practice Unpack the following into logical formulae:

(1) *Dorothy saw Bill or Alan*

_____

(2) *Either Dunfermline or Kirkcaldy is the capital of Fife*

_____

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(3) Does *Bernard or Christine strangled Mary* mean the same thing as *Christine or Bernard strangled Mary*? *Yes / No*

(4) Are b STRANGLE m V c STRANGLE m and c STRANGLE m V b STRANGLE m equivalent formulae? *Yes / No*

(5) Is every formula of the form p V q (where p and q stand for any propositions) equivalent to one of the form q V p? *Yes / No*

(6) Give a rule of inference, in diagram form, accounting for this equivalence.

Feedback (1) d SEE b V d SEE a (2) d CAPITAL f V k CAPITAL f (3) Yes (4) Yes (5) Yes (6) p V q (premiss)
$\overline{q \text{ V } p}$ (conclusion)

Comment This last rule of inference is the rule of commutativity of disjunction. This rule shows a similarity between the meaning of & (roughly corresponding to English *and*) and V (roughly, English *or*). Of course, there are important differences between *and* and *or*, and these can be seen from other rules of inference involving V.

Practice

(1) Is it correct to conclude that John is here simply from the premiss that either John or Mary is here? *Yes / No*

(2) Is the following a valid rule of inference? $\dfrac{p \text{ V } q}{p}$ *Yes / No*

(3) Is a rule of exactly the same form, but with & instead of V, valid? *Yes / No*

Feedback (1) No (2) No (3) Yes

Practice Consider the following sentence:
Alice went to Birmingham and she met Cyril or she called on David

(1) Is it possible to take this sentence in such a way that we understand that Alice definitely went to Birmingham but did not necessarily meet Cyril? *Yes / No*

(2) Is it possible to take this sentence in such a way that we understand that Alice did not necessarily go to Birmingham, but that, if she did, she definitely met Cyril? *Yes / No*

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Feedback (1) Yes (2) Yes

Comment This sentence is grammatically ambiguous (see Unit 11). The two meanings can be expressed by using brackets in the logical formula.

Example a GO b & (a MEET c V a CALL-ON d)
vs.
(a GO b & a MEET c) V a CALL-ON d

Comment The ambiguity here can be resolved by placing the word *either* in one of two positions.

Practice (1) Which of the two formulae just given expresses the meaning of *Either Alice went to Birmingham and she met Cyril or she called on David?*

_____

(2) Where would you put *either* in the original sentence to get the meaning expressed by a GO b & (a MEET c V a CALL-ON d)?

_____

(3) Is the following sentence grammatically ambiguous?
Adam will take Lucy or Cathy and Diana *Yes / No*

(4) Write down the two logical formulae corresponding to the two meanings of the sentence just given.

_____

_____

(5) Could the ambiguity of this sentence be resolved by a strategic placement of *either*? *Yes / No*

(6) Could the ambiguity of this sentence be resolved by a strategic placement of the word *both*? *Yes / No*

Feedback (1) (a GO b & a MEET c) V a CALL-ON d (2) Alice went to Birmingham and either she met Cyril or she called on David (3) Yes (4) a TAKE l V (a TAKE c & a TAKE d); (a TAKE l V a TAKE c) & a TAKE d (5) No (6) Yes, but the results sound rather unnatural: Adam will take Lucy or both Cathy and Diana vs. Adam will take both Lucy or Cathy and Diana. These could be made more acceptable by suitable intonations and stress.

Practice (1) In relation to the examples in the last practice what can you say about the position of the words *either* or *both* in relation to the position of the brackets in the corresponding logical formulae?

_____

_____

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(2) Write down two logical formulae corresponding to the two meanings of the following sentence:
Angela is Ben's mother or David's grandmother and Charlie's aunt

(3) Which of the two formulae in your answer to (2) definitely asserts that Angela is Charlie's aunt?

(4) Which of the two formulae in your answer to (2) definitely asserts that Angela is Ben's mother?

Feedback

(1) The position of *either* and *both* roughly indicates the position of the left-hand bracket in the logical formula. (2) a MOTHER b V (a GRANDMOTHER d & a AUNT c); (a MOTHER b V a GRANDMOTHER d) & a AUNT c
(3) (a MOTHER b V a GRANDMOTHER d) & a AUNT c (4) Neither

Comment

Rules of inference, which can be seen as contributing to a description of the meanings of connectives such as & and V, can be interpreted in terms of truth. A rule of inference states, in effect, that a situation in which the premiss (or premisses) is (are) true is also a situation in which the conclusion is true. But rules of inference do not explicitly operate with the terms 'true' and 'false', and do not, either explicitly or implicitly, state any relationships between propositions which happen to be false.

A full account of the contribution that a connective such as & or V makes to the truth or falsehood of a complex proposition can be given in the form of a truth table.

Example

Truth table for &:

p	q	p & q
T	T	T
T	F	F
F	T	F
F	F	F

Comment

This table conveys the core of the meaning of the English word *and*. English *and* behaves slightly more complicatedly and subtly than is indicated here, but the central features of the meaning of *and* are all reflected in this table.

In this table, p and q are, as before, variables standing for any proposition. The rows in the left-hand column list all possible combinations of the values T (for true) and F (for false) that can be assigned to a pair of propositions. The corresponding values in the right-hand column are the values of the formula p & q for those combinations of values.

The following practice, in terms of sentences rather than logical formulae, takes you through all the combinations in this truth table in the order given.

Practice

(1) In a situation in which *Henry died* and *Terry resigned* are both true, is *Henry died and Terry resigned* true or false? *T / F*

(2) In a situation where *Henry died* is true, but *Terry resigned* is false, is *Henry died and Terry resigned* true or false? *T / F*

(3) Where *Henry died* is false, but *Terry resigned* is true, is *Henry died and Terry resigned* true or false? *T / F*

(4) Where *Henry died* and *Terry resigned* are both false, is *Henry died and Terry resigned* true or false? *T / F*

Feedback

(1) T (2) F (3) F (4) F

Comment

English *and*, as we have said, is not exactly equivalent to the logical connective &, whose meaning is defined solely in terms of truth. It is interesting to ask about the meaning of the related English word *but*.

Practice

(1) Make a quick, intuitive judgement here. Do the English words *and* and *but* mean the same thing? *Yes / No*

(2) Now we will work out a truth table for *but*. Remember that we are only concerned with the TRUTH in given situations of the sentences we cite.

(a) In a situation where *Henry died* and *Terry resigned* are both true, is the sentence *Henry died but Terry resigned* true or false? *T / F*

(b) Where *Henry died* is true, but *Terry resigned* is false, is *Henry died but Terry resigned* true or false? *T / F*

(c) Where *Henry died* is false, but *Terry resigned* is true, is *Henry died but Terry resigned* true or false? *T / F*

(d) Where *Henry died* and *Terry resigned* are both false, is *Henry died but Terry resigned* true or false? *T / F*

(3) On the basis of your answers to questions (a)–(d) above, fill in the values (T or F, as appropriate) in the right-hand column of the truth table for *but* below.

p	q	p *but* q
T	T	
T	F	
F	T	
F	F	

(4) Does the truth table that you have filled out differ in any way from the truth table given for the logical connective &? *Yes / No*

(5) Considered only from the point of view of their effect on the truth of complex sentences containing them, do *and* and *but* differ in meaning? *Yes / No*

Feedback (1) No (2) (a) T (b) F (c) F (d) F (3) T, F, F, F (reading down the column) (4) No (5) No

Comment The conclusion reached about *and* and *but* need not be perplexing, so long as one bears in mind that truth-conditional meaning, of the kind described in truth tables, may be only a part of the meaning, in a wider sense, of a word. From the point of view of truth alone, *and* and *but* make the same contribution to meaning; but they differ in other aspects of meaning. In particular, the word *but* is preferred when the speaker wishes to indicate some kind of contrast between the two propositions involved. If the second proposition, but not the first, gives an unexpected piece of information, for instance, the use of *but*, rather than *and*, is appropriate. The logical connective & captures the truth-conditional aspects of the meanings of both *and* and *but*.

A truth table can also be given for V, corresponding approximately to English *or* (or *either . . . or*). We get you to construct one in practice below.

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Practice

(1) In a situation where *Henry died* and *Terry resigned* are both true, is (*Either*) *Henry died or Terry resigned* true or false? *T / F*

(2) Where *Henry died* is true, but *Terry resigned* is false, is (*Either*) *Henry died or Terry resigned* true or false? *T / F*

(3) Where *Henry died* is false, but *Terry resigned* is true, is (*Either*) *Henry died or Terry resigned* true or false? *T / F*

(4) Where *Henry died* and *Terry resigned* are both false, is (*Either*) *Henry died or Terry resigned* true or false? *T / F*

(5) Using your answers to (1)–(4) above as a basis, fill in the values (T or F, as appropriate) in the right-hand column of the table below.

p	q	p V q
T	T	
T	F	
F	T	
F	F	

Feedback

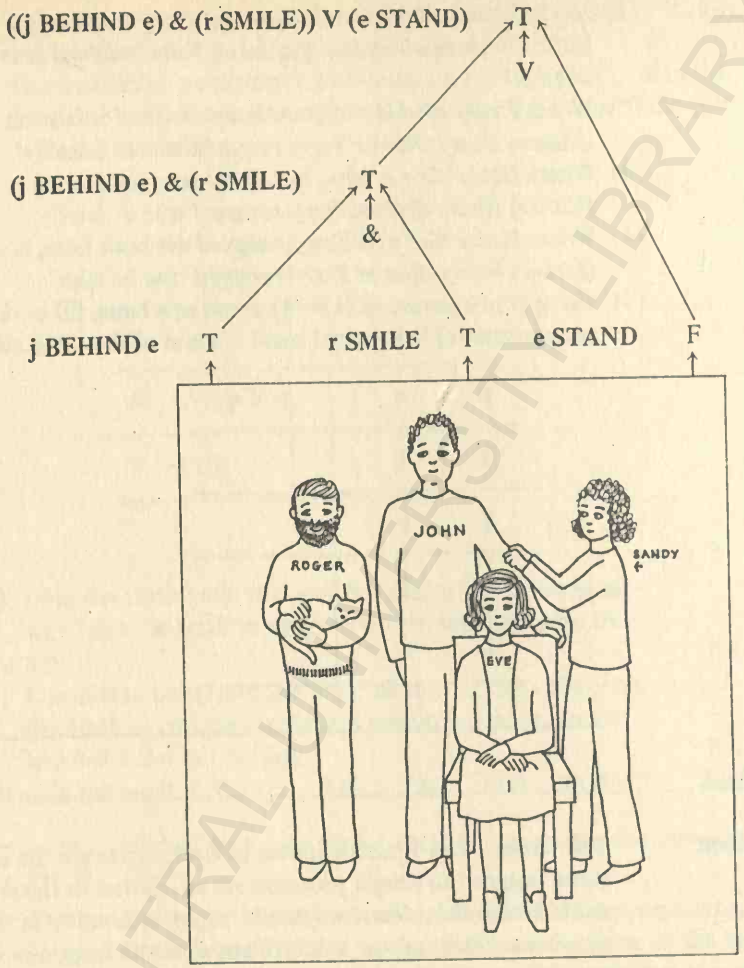
(1) T (2) T (3) T (4) F (5) T, T, T, F (reading down the column)

Comment

The values T and F which appear in truth tables are the same values as those assigned to simple propositions in relation to the situations in the world which they describe (recall the previous unit). In the case of simple propositions, the values T and F 'come from' the world. In the case of complex propositions with connectives such as & and V, the combinations of the values of the component simple propositions are 'looked up' in the appropriate truth table, and the value of the whole complex proposition (either T or F) is arrived at. Thus in the case of complex propositions, their truth values 'come from' the truth values of their constituent simple propositions.

Example

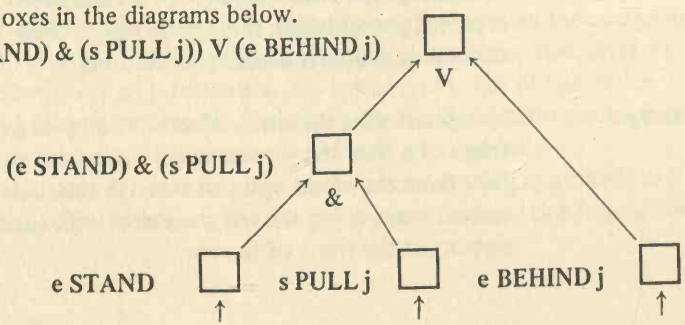
Metaphorically, the truth value of a complex proposition is like the trunk of a tree whose roots reach down into the world. Truth values flow from the world upwards through the roots, being affected in various ways where the roots connect with each other, and eventually arriving at the trunk of the tree.



Practice

Using the world shown in the picture above as the source of truth values for simple propositions, and calculating the values of complex propositions from truth tables, fill in the values T and F, as appropriate, in the boxes in the diagrams below.

(1) ((e STAND) & (s PULL j)) V (e BEHIND j)



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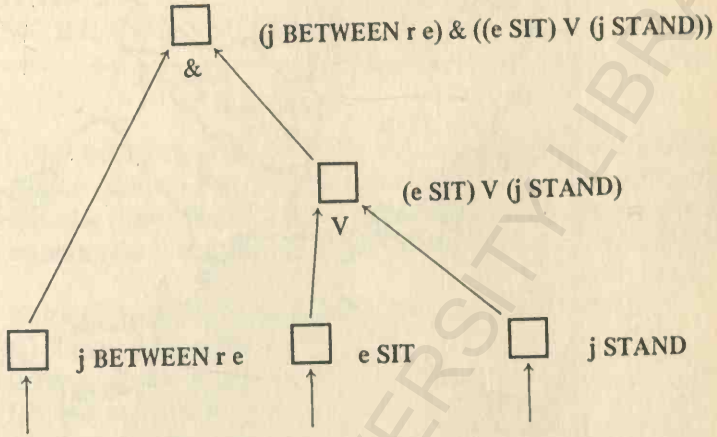
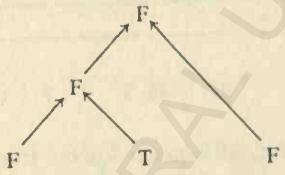
(2) (In this example, the boxes are on the left-hand side of their propositions, simply to make the diagram neater.)

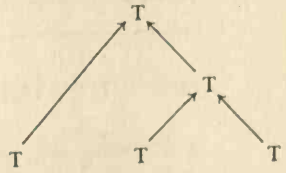


Feedback

(1)



(2)



Practice

Use the map overleaf as a 'world' to determine the truth values of the formulae (some simple, some complex) listed. We have used unabbreviated logical names, for convenience. Assume that the predicates have their usual English meanings.

(1) bombay IN india — *T / F*
(2) karachi IN iran — *T / F*
(3) tibet BORDER afghanistan — *T / F*
(4) (tashkent IN iran) & (kabul IN tibet) — *T / F*
(5) (karachi IN pakistan) V (ussr BORDER india) — *T / F*
(6) (karachi SOUTH tashkent) & ((tashkent EAST tehran) & (nepal BORDER tibet)) — *T / F*
(7) ((madras IN india) V (tehran IN tibet)) V (bombay IN iran) — *T / F*
(8) ((madras IN iran) V (tibet WEST iran)) & (kabul IN afghanistan) — *T / F*

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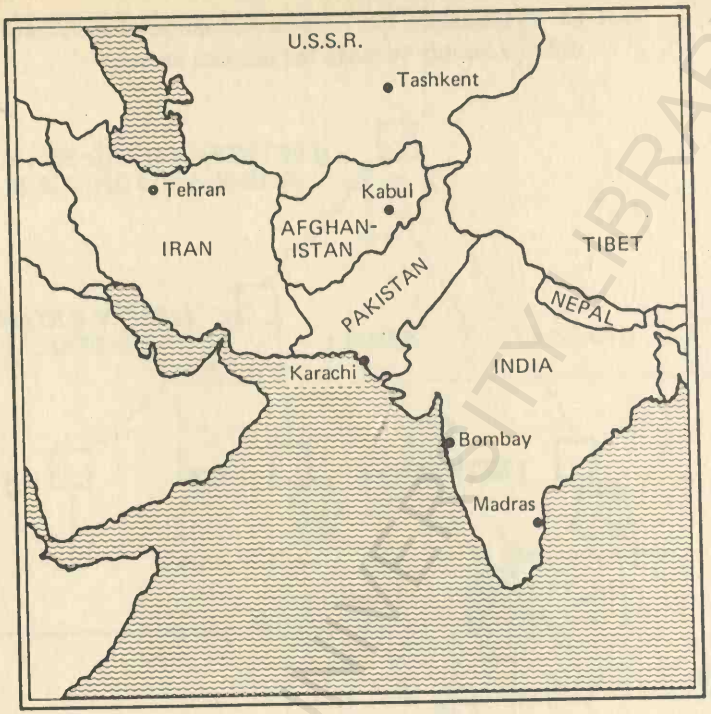

Feedback (1) T (2) F (3) F (4) F (5) T (6) T (7) T (8) F

Comment Truth values of complex propositions are derived from the truth values of their constituent simple propositions. This is an example of what has been called the compositionality of meaning.

Definition The thesis of COMPOSITIONALITY of meaning is that the meaning of any expression is a function of the meanings of the parts of which it is composed.

Comment The truth tables we have given for & and V are in fact functions of the kind mentioned in this definition.

Summary The logical connectives & (corresponding to English *and* and *but*) and V (roughly English *or*) are used to form complex propositional formulae by connecting simple propositional formulae. Rules of inference can be given involving these connectives, and they can be defined by means of truth tables.

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UNIT 15
MORE CONNECTIVES

Entry requirements

CONJUNCTION, DISJUNCTION, RULE OF INFERENCE and TRUTH TABLE (all from Unit 14), and a fluency in reading and writing logical formulae (Units 13 and 14). If you are confident of your grasp of these matters, take the entry test below. Otherwise, review Units 13 and 14.

Entry test

(1) Which of the following does the English word *but* express?
   (a) logical conjunction
   (b) logical disjunction
   (c) logical negation

(2) Is the table given below a truth table for p & q, or for p V q, or for neither?

p	q	
T	T	T
T	F	F
F	T	T
F	F	T

(3) Write a logical formula for *Either Jim is Pat's cousin or Sue is Jim's wife and Pat's cousin.* (Use brackets.)

---

(4) Write a logical formula for *Sue is Jim's wife and either Sue or Jim is Pat's cousin*

---

(5) Are the following two formulae logically equivalent?
   ((k BEAT f) & (f LOSE-TO k)) V (s WIN)
   (s WIN) V ((f LOSE-TO k) & (k BEAT f)) *Yes / No*

(6) Is the following a valid rule of inference?
   p V q (premiss)
   ---
   q & p (conclusion) *Yes / No*

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Feedback (1) (a) (2) neither (3) (j COUSIN p) V ((s WIFE j) & (s COUSIN p))
(4) (s WIFE j) & ((s COUSIN p) V (j COUSIN p)) (5) Yes, by commutativity of conjunction and disjunction. (6) No
If you got at least 5 out of 6 right, continue to the introduction. Otherwise, review Unit 14.

Introduction Unit 14 introduced connectives of conjunction and disjunction. In this unit you will meet three more connectives: implication →, equivalence ≡ and negation ~.

Comment The connective ~ used in propositional logic is paraphrasable as English *not*. Strictly speaking, ~ does not CONNECT propositions, as do & and V. ~ is prefixed to the formula for a single proposition, producing its negation. ~ is sometimes called the 'negation operator', rather than the 'negation connective'.

Example If b SLEEP stands for *Bill slept*, then
~ b SLEEP stands for *Bill didn't sleep.*

Practice Write formulae for the following:

(1) *Alice didn't sleep*

_____

(2) *Cardiff is not between Edinburgh and Aberdeen*

_____

(3) *Claire is not married to Bill*

_____

(4) *Alice didn't come and Bill didn't come*

_____

Feedback (1) ~ a SLEEP (2) ~ c BETWEEN e a (3) ~ c MARRY b
(4) (~ a COME) & (~ b COME)

Comment The brackets used in the answer to (4) above need to be inserted to prevent the formula being read as ~ (a COME & ~ b COME). This would be expressed in English as *It is not the case that Alice came and that Bill didn't come.*

Practice Write formulae for the following:

(1) *Alice didn't come and Bill didn't, either*

_____

(2) *Alice didn't come and nor did Bill*

_____

(3) *Neither Alice nor Bill came*

_____

Feedback (1) (~ a COME) & (~ b COME) (2) (~ a COME) & (~ b COME)
(3) (~ a COME) & (~ b COME)

Comment The conjunction of two negatives can be expressed in English in a variety of ways, including using the *neither . . . nor* construction. You may think this odd, as intuitively *neither . . . nor* is the negation of *either . . . or*.

Practice Let COME stand for *came* and a and b for the names *Alice* and *Bill*. Also assume we are not speaking of anyone else besides Alice and Bill.

(1) If *neither Alice nor Bill came* is true, how many of the people we are speaking of came? _____

(2) If a COME V b COME is true, how many people came? _____

(3) If ~ (a COME V b COME) is true, how many people came? _____

(4) Is *Alice didn't come and Bill didn't come* a paraphrase of *Neither Alice nor Bill came*? *Yes / No*

(5) Do (~ a COME) & (~ b COME) and ~ (a COME V b COME) represent equivalent propositions? *Yes / No*

Feedback (1) none (2) either one or two (3) none, i.e. neither one nor two (4) Yes
(5) Yes

Comment The equivalence of the two propositions in (5) above is an instance of one of a set of logical laws known as 'De Morgan's Laws'. We now turn to an instance of another of De Morgan's Laws, which neatly parallels the one we have just dealt with.

If we take these two formulae (~ a COME) & (~ b COME) and ~ (a COME V b COME) and substitute & for V and vice versa, then the resultant formulae also represent equivalent propositions.

Practice (1) What English sentence most closely corresponds to the formula (~ a COME) V (~ b COME)?

_____

(2) If the formula given in Question (1) is true, how many people came? _____

(3) Complete the following sentence to produce the sentence that most closely corresponds to the formula ~ (a COME & b COME).

It is not the case that _____

(4) Is the answer to Question (3) a paraphrase of *It is not the case that both Alice and Bill came*? *Yes / No*

(5) If the sentences mentioned in Questions (3) and (4) above are true, how many people came? _____

(6) Is *Either Alice didn't come or Bill didn't come* a paraphrase of *Alice and Bill didn't both come*? *Yes / No*

(7) Do (~ a COME) V (~ b COME) and ~ (a COME & b COME) represent equivalent propositions? *Yes / No*

Feedback

(1) Either Alice didn't come or Bill didn't come (This might be used, for example, by someone finding that a part of some food left out for Alice and Bill has not been touched.) (2) none or one (3) It is not the case that Alice came and Bill came (4) Yes (5) none or one (6) Yes (7) Yes

Comment

When negation interacts with conjunction or disjunction, a single meaning can often be represented by two different logical formulae. Give two logical formulae for each of the following:

Practice

(1) *Anne saw neither Ben nor Clara*

_____

_____

(2) *Anne didn't see both Ben and Clara*

_____

_____

(3) *Fred is neither boastful nor proud*

_____

_____

(4) *Fred is not both boastful and proud*

_____

_____

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Feedback

(1) ~ (a SEE b V a SEE c); (~ a SEE b) & (~ a SEE c)
(2) ~ (a SEE b & a SEE c); (~ a SEE b) V (~ a SEE c)
(3) ~ (f BOAST V f PROUD); (~ f BOAST) & (~ f PROUD)
(4) ~ (f BOAST & f PROUD) ; (~ f BOAST) V (~ f PROUD)

Comment

These examples are particular cases of general rules which can be stated as follows:

~ (p V q) is equivalent to (~ p) & (~ q)
~ (p & q) is equivalent to (~ p) V (~ q)

These equivalences can be seen as rules of inference, either with the left-hand sides as premisses and the right-hand sides as conclusions, or vice versa. In practice below, we get you to work out a truth table definition for the negation operator and also show you another rule of inference involving negation.

Practice

(1) If *Henry died* is true, is *Henry didn't die* true or false? *T / F*

(2) If *Henry died* is false, is *Henry didn't die* true or false? *T / F*

(3) The truth table for ~ is simpler than those for the genuine connectives, since it only affects one proposition at a time. Fill in the appropriate values (either T or F) in the right-hand column of the table below.

p	~p
T	
F	

(4) Given the premiss that Henry died, is it correct to conclude that it is not the case that Henry didn't die? *Yes / No*

(5) Give a rule of inference corresponding to the answer to the previous question.

---

(6) Is the converse of this rule of inference also a valid rule of inference? *Yes / No*

Feedback

(1) F (2) T (3) F, T (reading down the column) (4) Yes
(5) p (premiss)
~ ~ p (conclusion)
(6) Yes

Comment

These logical relationships between truth and falsehood allow one to construct a nice little puzzle. We give it as practice below, with the advice that the answer may take you five or ten minutes hard thought to arrive at, so don't rush too impatiently to look at the feedback.

Practice

A prisoner is kept in a room with two jailers. The room has two doors, one to freedom, and the other to certain death. The prisoner knows this, but he does not know which door is which. He also knows that one of his jailers always tells the truth, and that the other always tells lies, but he does not know which jailer is the truth-teller and which is the liar. He is allowed to ask just ONE question of one of the jailers: he may choose which jailer to ask, and he may decide what question to ask. (Both jailers know which door is which, and each knows the other's lying or truthful disposition.) What single question can the prisoner ask in order to find out for certain which door leads to freedom?

Feedback

The question the prisoner should ask, of either jailer, is "What would the other jailer say if I asked him which was the door to certain death?" Depending on which jailer he asks, the prisoner will either get a truthful report of a lying answer, or a lying report of a truthful answer. These are both equivalent to a lie, so the prisoner can be certain that the report he gets reflects the opposite of the truth about the doors. Armed with this certainty, he walks to freedom out of the door which the first jailer told him that the second jailer would say led to certain death.

Comment

We leave negation now. The logical connective symbolized by → corresponds roughly to the relation between an *'if'* clause and its sequel in English. The linking of two propositions by → forms what is called a conditional.

Example

The meaning of *If Alan is here, Clive is a liar* would be represented by the formula a **HERE** → **c LIAR**.

Practice

Give logical formulae for the following:

(1) *If the knight takes the bishop, Alice will lose*

---

(2) *Alice will lose if the knight takes the bishop*

Feedback

(1) k TAKE b → a LOSE (2) k TAKE b → a LOSE

Comment

In English, conditional sentences can be expressed with the clauses in either order, but the logical proposition remains the same.

Practice

Express the meanings of the following sentences in logical formulae:

(1) *If Adam trusts Eve, he's stupid*

---

(2) *Adam's stupid if he trusts Eve*

_____

(3) *If David is Alice's brother, then Fanny's his aunt*

_____

(4) *Fanny is David's aunt if he is Alice's brother*

_____

Feedback (1) a TRUST e → a STUPID (2) a TRUST e → a STUPID (3) d BROTHER a → f AUNT d (4) d BROTHER a → f AUNT d

Comment When we get combinations of → and the other connectives, we sometimes get cases of ambiguity in the corresponding English sentence. (We will use brackets as before to indicate different interpretations.)

Practice Unpack the two meanings of the following sentences into two logical formulae. (If you can't spot the ambiguity at once, try uttering the sentences aloud with pauses in different places.)
If David is Alice's brother then Fanny's his aunt or Bob's his uncle

_____

_____

Feedback (d BROTHER a → f AUNT d) V b UNCLE d
d BROTHER a → (f AUNT d V b UNCLE d)

Practice (1) At what point in the sentence in the previous practice can one insert the word *either* in order to make it convey
d BROTHER a → (f AUNT d V b UNCLE d)?

_____

_____

(2) In what way could one rearrange the parts of the sentence mentioned to make it convey ONLY:
(d BROTHER a → f AUNT d) V b UNCLE d?

*Either*_____

_____

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Feedback

(1) If David is Alice's brother then either Fanny's his aunt or Bob's his uncle
(2) Either Bob is David's uncle or, if David is Alice's brother, Fanny is his aunt

Practice

(1) Unpack the ambiguity of the following sentence into two different logical formulae:
Claire will marry Burt and Ethel will resign if David goes to Glasgow

_____

_____

(2) Which of your formulae asserts that Claire will marry Burt in any case?

_____

(3) How can the parts of the sentence mentioned be rearranged to convey only the meaning which asserts that Claire will marry Burt in any case?

_____

(4) Using both the *if . . . then* construction and the *not only . . . but also* construction, rearrange the sentence mentioned so that it conveys that both Claire's marrying Burt and Ethel's resignation are conditional upon David's going to Glasgow.

_____

Feedback

(1) c MARRY b & (d GO g → e RESIGN); d GO g → (c MARRY b & e RESIGN)
(2) c MARRY b & (d GO g → e RESIGN) (3) Claire will marry Burt and if David goes to Glasgow, Ethel will resign (4) If David goes to Glasgow then not only will Claire marry Burt but Ethel will also resign

Comment

We have introduced the logical connective → in an informal intuitive way as a 'translation' of English *if . . . then*. We have not defined the meaning of this connective in any formal way, either by truth table or by rule of inference. Our goal in this book is to present a system of logic in which elements of the logical notation correspond fairly closely with elements in ordinary language. In the case of & and V, whose meanings can be defined by truth tables, there is a satisfactorily close relationship with the English words *and* and *or*. But it is not possible to give a truth table definition of → which satisfactorily corresponds to the meaning English speakers intuitively grasp for *if . . . then*. To illustrate this, we pose below the questions which would be relevant to the construction of a truth table for *if . . . then*.

Practice

(1) In a situation in which both *Henry died* and *Terry resigned* are true, is the sentence *If Henry died, then Terry resigned* true or false? _ *T / F*

(2) In a situation where *Henry died* is true, but *Terry resigned* is false, is *If Henry died, then Terry resigned* true or false? *T / F*

(3) In a situation where *Henry died* is false, but *Terry resigned* is true, is *If Henry died, then Terry resigned* true or false? *T / F*

(4) In a situation where *Henry died* and *Terry resigned* are both false, is *If Henry died, then Terry resigned* true or false? *T / F*

(5) Did you find these questions as easy to answer as the similar questions in the previous unit relating to truth tables for & and V? *Yes / No*

Feedback

(1) The sentence with *if . . . then* could be true, but if there was no necessary connection in the situation concerned between Henry's death and Terry's resignation, English speakers would usually judge it to be false. (2) In this case, it seems clear that the sentence with *if . . . then* must be false. (3) The judgement of most English speakers is that in this situation, the sentence with *if . . . then* does not apply, and so cannot be said to be either true or false. (4) Again, one might say that in this situation the sentence with *if . . . then* does not apply, and so cannot be true or false. On the other hand, if there was felt to be some necessary connection between the idea of Henry's death and that of Terry's resignation, one might judge the sentence to be true. (5) presumably not

Comment

The concept of a necessary connection between propositions expressed by sentences in the *if . . . then* construction is not one that can be captured by a truth table. (In fact, logicians do define a connective, which they symbolize with → or, alternatively ⊃, by means of a truth table (actually, the truth table given in Question (2) of the entry test for this unit). This connective is known as 'material implication'; but it is clear that material implication does not correspond closely with English *if . . . then*. Put simply, English *if . . . then* is not a truth-functional connective. One can, however, formulate rules of inference which capture the essence of the meaning of English *if . . . then*.

Practice

(1) Given the premiss that if Henry died, then Terry resigned, and given further the premiss that Henry did in fact die, would it be correct to conclude that Terry resigned? *Yes / No*

(2) Symbolizing *if . . . then* by →, is the following rule of inference valid?

$$\begin{array}{ll} p \rightarrow q & \text{(premisses)} \\ p & \\ \hline q & \text{(conclusion)} \end{array}$$

Yes / No

(3) Have you seen this rule of inference somewhere before? *Yes / No*

(4) Given the premiss that if Henry died then Terry resigned,

and given further the premiss that Terry did not in fact resign, would it be correct to conclude that Henry did not die? *Yes / No*

(5) Is the following a correct rule of inference (involving both the conditional and negation)?

$p \rightarrow q$ (premisses)
$\sim q$

$\sim p$ (conclusion) *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes, it is Modus Ponens, mentioned in Unit 12.
(4) Yes (5) Yes, this rule of inference is known as 'Modus Tollens'.

Comment A further logical connective is indicated with the symbol ≡. This expresses the meaning of *if and only if* in English. The linking of two propositions by ≡ produces what is called a 'biconditional'.

Example The meaning of *Ada is married to Ben if and only if Ben is married to Ada* could be represented as (a MARRY b) ≡ (b MARRY a)

Practice (1) Express the meaning of the following sentence as a logical formula:
Alex is Bill's son if and only if Bill is Alex's father

---

(2) Does the sentence just mentioned entail the following one?
Alex is Bill's son if Bill is Alex's father *Yes / No*

(3) Give a logical formula (using →) for the sentence in Question (2)

---

(4) Does the sentence mentioned in Question (1) entail *Alex is Bill's son only if Bill is Alex's father (and perhaps not even then)*? *Yes / No*

(5) Give a logical formula (again using →) for the sentence mentioned in Question (4). (Nothing in your formula need correspond to the material after *and perhaps* in this sentence, which is included just to clarify its meaning.)

---

(6) Could the sentence in Question (1) be represented logically as
((a SON b) → (b FATHER a)) & ((b FATHER a) → (a SON b))? *Yes / No*

Feedback (1) (a SON b) ≡ (b FATHER a) (2) Yes (3) (b FATHER a) → (a SON b) (4) Yes (5) (a SON b) → (b FATHER a) (6) Yes

Comment The biconditional connective is aptly named, because it is equivalent to the conjunction of two conditionals, one 'going in each direction'. In other words, there is a general rule.

Rule $p \equiv q$ is equivalent to $(p \rightarrow q) \,\&\, (q \rightarrow p)$

Comment The combination of the biconditional with *and* and *or* produces ambiguities of the kind we have seen before, but these are not quite so easily detectable as was the case with earlier examples. The English phrase *if and only if* is not current in everyday language, and so the question of defining the connective ≡ in such a way that it corresponds closely with the meaning of this phrase is not easy. Following from its relationship to the conditional connective →, a number of inference rules involving it can be stated.

Practice Are the following correct rules of inference or not?

(1) $\dfrac{p \equiv q}{q \equiv p}$ *Yes / No*

(2) $\dfrac{p \equiv q \quad p}{q}$ *Yes / No*

(3) $\dfrac{p \equiv q \quad q}{\sim p}$ *Yes / No*

(4) $\dfrac{p \equiv q \quad \sim p}{\sim q}$ *Yes / No*

(5) $\dfrac{p \equiv q \quad \sim q}{\sim p}$ *Yes / No*

Feedback (1) Yes (2) Yes (3) No (4) Yes (5) Yes

Comment We will not give a truth table definition for ≡.

Summary The logical negation operator ~ corresponds fairly closely with English *not* or *n't* in meaning, and can be defined both by truth table and by rules of inference. The logical connectives → (conditional) and ≡ (biconditional) cannot be defined by truth table in any way which closely reflects the meanings of English *if . . . then* and *if and only if*. However, rules of inference can be given for them which fairly accurately reflect valid inferences in English involving *if . . . then* and *if and only if*.

Now that you are familiar with these connectives, the conjunction

and disjunction connectives of the previous unit, and the negation operator, you have met all the formal apparatus that together forms the system known as 'propositional logic', or 'propositional calculus'. This branch of Logic deals with the ways in which propositions can be connected (and negated) and the effect which these operations (of connection and negation) have in terms of truth and falsehood. This establishes a solid foundation for more advanced work in logic.

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5 Word meaning

UNIT 16
ABOUT DICTIONARIES

Entry requirements None.

Introduction A dictionary is a central part of the description of any language. A good ordinary household dictionary typically gives (at least) three kinds of information about words, phonological information about how the word is pronounced, grammatical (syntactical and morphological) information about its part of speech (e.g. noun, verb) and inflections (e.g. for plural number or past tense), and semantic information about the word's meaning.

Practice Given below are some (slightly edited) entries extracted from the *Random House Dictionary of the English Language* (College edition 1968). In each case (a) underline the phonological information, (b) bracket [thus] the grammatical information, and (c) leave the semantic information unmarked.

(1) green (grēn), *adj.* of the color of growing foliage
(2) must (must), *auxiliary verb* to be compelled to, as by instinct or natural law
(3) oak (ōk), *noun* any fagaceous tree or shrub of the genus *Quercus*, bearing the acorn as fruit
(4) squirt (skwûrt), *intransitive verb* to eject liquid in a jet, as from a narrow orifice

---

Feedback (1) (grēn) [*adj.*] of the color of growing foliage (2) (must) [*auxiliary verb*] to be compelled to, as by instinct or natural law (3) (ōk) [*noun*] any fagaceous . . . as fruit (4) (skwûrt) [*intransitive verb*] to eject liquid . . . narrow orifice

Comment (Random House, regrettably, uses an idiosyncratic 'imitated pronunciation' instead of a proper phonetic alphabet.)

From now on we will suppress phonological information about the words we use as examples, and we will only refer to grammatical information in order to distinguish between various semantic senses of a word (e.g. between the sense of *carp*, the verb, and that of *carp*, the noun). We shall concentrate our attention on the semantic aspects of the kind of dictionary of a language that a linguist would wish to present.

A dictionary tells you what words mean. The semanticist dictionary-writer and the ordinary dictionary-writer have quite similar goals, but they differ markedly in their style of approach and the emphasis which they place on their various goals. In order to illustrate the kind of dictionary that a semanticist tries to devise, we will first take a look at some properties of a good ordinary household dictionary.

We will give you some exercises based on samples extracted from the *Concise Oxford Dictionary* (6th edition, 1976), given below. (We have edited these samples from the dictionary so as to give only information that is relevant to the following exercises.)

animal 1 Organized being endowed (more or less perceptibly) with life, sensation, and voluntary motion; (esp.) such being other than man

female 1 Of the sex that can bear offspring or produce eggs; (of plants or their parts) fruit-bearing, having pistil and no stamens . . .

Homo 1 (Name of the genus including) man

human 1 Of or belonging to man; that is a man or consists of men
2 Of man as opp. to God
3 Having or showing the qualities distinctive of man as opp. to animals, machines, mere objects, etc.

husband Married man, esp. in relation to his wife

join 1 Put together, fasten, unite . . . ; unite (persons, one *with* or *to* another) in marriage, friendship, alliance, etc.

male 1 Of the sex that can beget offspring by performing the fertilizing function; (of plants) whose flowers contain only fecundating organs . . . of men or male animals or plants

man 1 Human being, individual of genus *Homo*, distinguished from other animals by superior mental development, power of articulate speech and upright posture
4 Adult, human male, opp. to woman, boy, or both

marriage 1 Condition of man and woman legally united for purpose of living together and usu. procreating lawful offspring

marry 1 . . . (of person) take as wife or husband in marriage

sex 1 Being male or female or hermaphrodite

unite Join together, make or become one, consolidate, amalgamate

wife Married woman esp. in relation to her husband

woman 1 Adult human female

Note

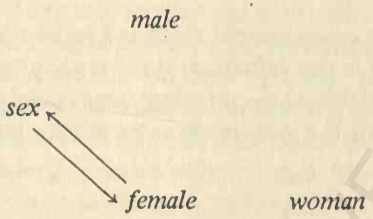
Man is given two separate senses here (numbered 1 and 4) and *human* is given three senses (1, 2 and 3). We will treat each sense as a different item, representing them as man_1, man_4, $human_1$, $human_2$, and $human_3$.

Comment

The first point to note about all dictionaries is that their definitions are necessarily interconnected.

Practice

(1) Below we have started to draw a diagram showing the interconnectedness of the definitions in the above sample. The rule for drawing arrows is: If the definition of X includes Y, draw an arrow from X to Y. You complete the diagram by drawing in the remaining three arrows.



(2) Now draw another such set of arrows to show the interconnectedness of the *Concise Oxford Dictionary*'s definitions of the terms below. Treat grammatically related pairs of words, such as *unite* and *united*, *marry* and *married*, as single items. There should be eleven arrows in the diagram in total.

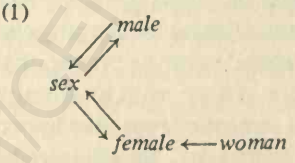
wife *join*

marry *marriage*

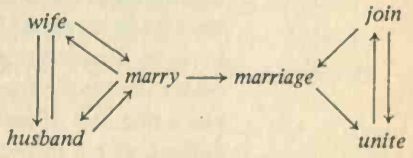
husband *unite*

Feedback

(1)



(2)



Comment

This interconnectedness of dictionary definitions is unavoidable, and indeed desirable. In the kind of dictionary that a semanticist would propose, as part of the semantic description of a language, there would be the same interconnectedness between the definitions of various predicates, because the semantic dictionary-writer's main interest is the sense relations between predicates. (But notice that the ordinary dictionary's definitions are not usually phrased in terms of the specific,

precisely defined sense relations, e.g. hyponymy, antonymy, etc. which the semanticist is interested in.) Clearly, our sample from the *Concise Oxford Dictionary* shows a high degree of circularity. This arises, probably, from the commonly accepted idea that the goal of a dictionary is to define everything. One cannot define absolutely everything without a degree of circularity in one's definitions. The linguistic semanticist, on the other hand, is more inclined than the ordinary dictionary-writer to leave some terms undefined. Such undefined terms are called semantic primes. The nearest equivalent in the ordinary dictionary to the semanticist's idea of undefined semantic primes is the use of rather technical, even sometimes abstruse, terms in its definitions.

Practice

Go through the dictionary sample above and make a list of about seven or eight words used in the definitions that have a rather technical, or academic flavour, words whose meanings uneducated people would perhaps not know. Write out your list in order of remoteness from ordinary language.

Feedback

Our list would be as follows: *fecundate*, *genus*, *Homo*, *pistil*, *stamens*, *procreate*, *beget*, *hermaphrodite*.

Comment

The use of such technical terms can be seen as an attempt to break out of the circularity which we have noted: an attempt to define the words of ordinary language in another language, e.g. Latin in the case of *Homo*, or the technical language of science, as in the case of *fecundate*. This is not a strategy which the descriptive semanticist adopts. But the descriptive semanticist's dictionary does use a few technical devices specifically designed (by semanticists) for the purpose of describing meaning. Beside some undefined semantic primes, the main technical device used is the framework of logic, with its notation using →, &, etc. and a small set of technical semantic terms, like hyponym, clearly defined within this logical framework. We will introduce further such terms gradually in subsequent units.

In connection with the use of technical language in ordinary dictionaries, we mention that they operate a small bias in favour of educated usage. This educated bias of dictionaries should not lead to misunderstanding about the nature of the semanticist's task. We, just as the ordinary dictionary-writer, are concerned with describing meaning, and not with prescribing meaning. Academic semanticists tend to be well-educated people, and most speak a language in which, for example,

both *bird* and *mammal* are hyponyms of *animal*. Semanticists aim to describe the sense relations between predicates, as they understand them, in their own everyday language.

There is one notable area in which descriptive semanticists are prepared to abandon ordinary language and to allow a few terms which do not actually occur in the language to be regarded as predicates entering into sense relations with other, actually occurring, predicates. We explain this below.

Example

Sibling is not a word in the everyday English vocabulary, but is a technical term used to refer to someone who is either a brother or a sister. *Sibling* is to *brother* and *sister* what *parent* is to *father* and *mother*. The meaning of *sibling* contains no concept of sex. Clearly, the two predicates *brother* and *sister* form a natural class; it is useful in our description of the relationships between predicates to have a term corresponding to such a natural class and so semanticists adopt one. In our descriptions, we will mark such 'theoretical' or 'technical' predicates with an asterisk, e.g. **sibling*.

Comment

Such theoretical predicates must be used sparingly and only to collect together under one heading a set of predicates that share a common conceptual element. Thus, **sexed* can justifiably be used because *male* and *female* are, so to speak, 'two sides of the same coin', and the predicates grouped together under **locomote*, such as *walk*, *run*, *crawl*, and *roll*, all have in common the fact that they contain an element of 'change of place', an element not contained in predicates such as *shake*, *twitch*, and *sway*. We now give you some practice in identifying such natural classes of predicates.

Practice

Given below are sets of predicates. In each case, there is one 'odd man out', a predicate not belonging to the same natural class as all the others. (a) Identify the odd man out and (b) describe as concisely as you can the common conceptual element in the remaining predicates.

(1) *sing*, *talk*, *dance*, *speak*, *shout*, *whisper*, *mutter*

(a) _____ (b) _____

(2) *ooze*, *trickle*, *drip*, *seep*, *slide*, *gush*, *squirt*

(a) _____ (b) _____

(3) *rub*, *scratch*, *graze*, *wipe*, *scrape*, *brush*, *push* (all transitive verbs)

(a) _____ (b) _____

(4) *at*, *of*, *in*, *on*, *under*, *below*, *near*

(a) _____ (b) _____

(5) *square, circular, triangular, spherical, hexagonal, rectangular, polygonal*

(a) _____ (b) _____

Feedback

(1) (a) *dance* (b) deliberate noise-making activity with the vocal tract
(2) (a) *slide* (b) movement made by liquids (3) (a) *push* (b) movement of a solid body across and in contact with a surface (4) (a) *of* (b) location
(5) (a) *spherical* (b) plane (two-dimensional) shape

Comment

We now come to an essential property of any good dictionary, namely its precision. Good ordinary dictionaries achieve a high standard of precision, but we shall show that by the descriptive semanticist's criteria, even such a good dictionary as the *Concise Oxford Dictionary* fails to define the meanings of words with enough exactness.

Practice

To do these exercises you will need to refer back to the sample of definitions from the *Concise Oxford Dictionary* given above, p. 178.

(1) The definition of *marriage* includes the word *man*. How many senses of *man* have we given in the above sample? _____

(2) Does the definition of *marriage* state explicitly which sense of *man* is intended? *Yes / No*

(3) If one genuinely did not know the meaning of *marriage*, could one get the impression from this dictionary that it could mean "condition of a woman and any other human being legally united for purpose of living together and usu. procreating lawful offspring"? *Yes / No*

(4) Is this in fact what *marriage* means? *Yes / No*

(5) Would this difficulty be avoided if the dictionary marked (e.g. with subscript numbers) the senses of words used in its definitions, e.g. "*marriage*: Condition of man$_4$ and woman legally united . . . "? *Yes / No*

(6) The word *man* (or *men*) occurs three times in the definition of the first sense of *human*. Which sense of *man* is intended, that of *man*$_1$ or *man*$_4$? _____

(7) In the definition of *husband*, which sense of *man* is intended? _____

Feedback

(1) two (2) No (3) Yes (4) No (5) Yes (6) *man*$_1$ (7) *man*$_4$

Comment

In fact the *Concise Oxford Dictionary* does use superscript numbers on the words in some of its definitions, but generally only in cases of homonymy, as opposed to polysemy (see Unit 11). The distinction between homonymy and polysemy is in many cases rather arbitrarily

drawn, and as we have seen in the above practice, it would increase the precision of the dictionary to use a device for distinguishing even closely related senses of the same word (i.e. cases of polysemy, as with man_1 and man_4). Another way in which an ordinary dictionary lacks precision is by its frequent use of vague terms, such as 'etc.', 'more or less', 'especially', and 'usually'. You can check that all of these vague terms are used in the sample we took from the *Concise Oxford Dictionary*.

So far the criticisms we have made of the ordinary dictionary may not seem very condemning. One difficulty can be avoided by simply using subscript or superscript numbers to indicate each separate sense of a word. And it can well be argued that the use of such vague terms as 'etc.', 'more or less', 'especially', and 'usually' is unavoidable, because meanings simply cannot be pinned down with absolute precision. This is a perfectly valid point: as we noted in Unit 9, it is usually not possible to give complete sets of necessary and sufficient conditions corresponding to the senses of predicates. But for the present, we will indicate some areas where it is quite clear that a degree of precision can realistically be achieved which the *Concise Oxford Dictionary* happens not to achieve.

Practice

Answer the following questions about the sense relations between words and sentences as you understand them:

(1) Is *male* compatible with *female*? *Yes / No*

(2) Does *John is married to Mary* entail *Mary is married to John*? *Yes / No*

(3) Does *The bench is joined to the table* entail *The table is joined to the bench*? *Yes / No*

(4) Is *man* (in either sense given) a hyponym of *animal*? *Yes / No*

Feedback

(1) No (2) Yes (3) Yes (4) Yes

Comment

Now we will see whether this information is clearly presented, or indeed presented at all, in the ordinary dictionary. To do the following exercises, you must put yourself in the position of someone who really does not know the actual meanings of the words defined and is genuinely using the *Concise Oxford Dictionary* to try to discover what the words mean.

Practice

(1) In the definition given for *female* is there any mention of the predicate *male*? *Yes / No*

(2) In the definition given for *male* is there any mention of *female*? *Yes / No*

(3) In the definition of *sex* is it explicitly stated that one cannot be both male and female? *Yes / No*

(4) In the definition of *join*, is there any explicit indication that *join* is a so-called symmetric predicate, i.e. that if X is joined to Y, then Y must also be joined to X? *Yes / No*

(5) In the definition of *man*, does the use of 'other animals' imply that human beings are in fact animals? *Yes / No*

(6) Would it be reasonable to infer from the definition of *human* that human beings are not animals? *Yes / No*

Feedback (1) No (2) No (3) No (4) No (5) Yes (6) Yes

Comment We see that some quite clear facts about sense relations in English, i.e. the incompatibility of *male* and *female*, the symmetry of *join* and of *marry*, and the hyponymy of *man* to *animal*, are either not explicitly stated or left unclear in this ordinary dictionary. It may be objected that these facts are too obvious to mention. But the semanticist's goal is to be able to account for every sense relation, whether obvious or not.

The linguistic semanticist is interested in the meanings of words and not in non-linguistic facts about the world. Correspondingly, he attempts to make a strict demarcation between a dictionary and an encyclopaedia. (This attempt is actually highly problematic.)

Definition A DICTIONARY describes the senses of predicates.

An ENCYCLOPAEDIA contains factual information of a variety of types, but generally no information specifically on the meanings of words.

Comment The stereotype of a predicate (Unit 9) contains, strictly speaking, only encyclopaedic information, although the importance of stereotypes in the use and understanding of words fuzzes the distinction between dictionary and encyclopaedia. Most ordinary dictionaries occasionally stray into the domain of encyclopaedias, giving information not strictly relevant to the bare senses (as opposed to stereotypes) of words. To illustrate this point, we will compare some entries from the *Concise Oxford Dictionary* with the corresponding entries in *Webster's New Collegiate Dictionary* (1959 edition).

Practice (a) Which of the two dictionaries quoted below is the more encyclopaedic?

(b) In the dictionary entries quoted below underline the information (in

one or both entries) that seems not strictly relevant to the sense of the word defined.

	Concise Oxford	*Webster's New Collegiate*
(1)	**beret** Round flat felt or cloth cap	**beret** A round, flat, visorless cap of soft material, originally worn by Basque peasants
(2)	**walrus** Large amphibious carnivorous arctic long-tusked mammal (*Odobenus rosmarus*) related to seal and sea-lion	**walrus** A very large marine mammal (*Odobenus rosmarus*) of the Arctic Ocean allied to the seals, but forming a distinct family (Odobenidae). In the male the upper canine teeth form greatly elongated protruding tusks. The skin makes valuable leather, the tusks are fine ivory, and the blubber yields oil.

Feedback (a) Webster's in both cases (b) The information that we would judge to be not relevant to the sense of the words defined is as follows: (1) originally worn by Basque peasants; (2) carnivorous; In the male, upper canine; The skin makes . . . yields oil.

Comment There is room for some disagreement over the correct answers here, but we expect you to have agreed with our judgements to a great extent. To show you the basis of our judgements, and the criteria used by the theoretical semanticist, we now relate the above cases to judgements about sense properties, particularly drawing upon the notions of analytic and synthetic (Unit 9).

Practice Say whether each of the following sentences is analytic (A), or synthetic (S).

(1) *Basque peasants used to wear berets* *A / S*
(2) *A beret is a form of headgear* *A / S*
(3) *This walrus is a mammal* *A / S*
(4) *The skin of the walrus makes valuable leather* *A / S*

Feedback (1) S (2) A (3) A (4) S

Comment The very issue of whether the analytic–synthetic distinction can be coherently drawn is controversial. We take the position that such a distinction can be drawn, even though there may be many instances which are unclear. In most of our examples, we shall concentrate on the clear

cases. You probably agreed with all our judgements in the above practice.

The descriptive semanticist is basically interested in that information about words which can give rise to sentences containing them being either analytic (e.g. *The walrus is an animal*) or contradictions (e.g. *The walrus is not an animal*). Any other information is not strictly semantic but encyclopaedic.

To end this unit we will mention one final goal that both ordinary dictionary-writers and descriptive semanticists may try to achieve, namely completeness of coverage. In this area the ordinary dictionary easily outstrips the semanticist's. It is not possible at this stage in our text to give exercises to show in detail why this is so, but it is a relevant fact that ordinary, informal dictionary writing has a centuries-long tradition to build upon, whereas the devising of dictionaries by semantic theorists working to exacting standards of logical rigour is an enterprise begun within the last half-century.

Summary

We have illustrated in this unit certain important properties of dictionaries, namely interconnectedness, the use of certain technical or theoretical terms and devices, and precision, showing points of similarity and dissimilarity between the approaches of the ordinary dictionary-writer and the theoretical linguistic semanticist. The linguistic semanticist's approach is characterized by a strict insistence on describing just those properties of a word that relate to its sense.

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UNIT 17
MEANING POSTULATES

Entry requirements

SENSE RELATIONS (Unit 10). If you feel you understand these, take the entry test below.

Entry test

Answer the following questions:

(1) Which is the superordinate term in the following list:
man, stallion, male, boy, bull, boar

(2) Is *stallion* a hyponym of *horse*? *Yes / No*

(3) Is *This ram is female* a contradiction? *Yes / No*

(4) Is *This parrot is a bird* a contradiction? *Yes / No*

(5) Which of the following statements is correct?
- (a) The propositional connective & corresponds roughly to *if . . . then.*
- (b) The propositional connective → corresponds roughly to *if . . . then.*
- (c) The propositional connective → corresponds roughly to *and.*

Feedback

(1) *male* (2) Yes (3) Yes (4) No, it's analytic. (5) (b)
If you have scored less than 4 correct out of 5, you should review Unit 10 or Unit 15, as appropriate. Otherwise, continue to the introduction below.

Introduction

In this unit we outline the shape of a linguistic semanticist's dictionary. Such a dictionary is a list of predicates and their senses. For each sense of a predicate there is a dictionary entry which lists the sense properties of that predicate and the sense relations between it and other predicates.

We will begin with an informal example in order to give you a more concrete idea of the shape of the dictionary.

Example

HUMAN BEING:	One-place synonym of MAN_1
MAN_1:	One-place synonym of HUMAN BEING
MAN_2:	One-place hyponym of MALE hyponym of ADULT hyponym of HUMAN BEING
$MARRY_1$:	Two-place symmetric

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WOMAN: One-place
hyponym of FEMALE
hyponym of ADULT
hyponym of HUMAN BEING

Comment In our dictionary we adopt a notation in keeping with that used for predicates in our units on logic, i.e. we write predicates in capital letters. Note that the above example avoids a difficulty mentioned in the previous unit by carefully distinguishing between different senses of the same word, e.g. the entry for *human being* states that it is a synonym of man_1.

This unit will be devoted to elaborating the bare outline of a dictionary as illustrated above. We begin by introducing the central idea of a meaning postulate.

Definition A MEANING POSTULATE is a formula expressing some aspect of the sense of a predicate. It can be read as a proposition necessarily true by virtue of the meaning of the particular predicates involved.

Example $x\ MAN_1 \equiv x$ HUMAN BEING

Comment This example expresses the fact that *man* (in sense 1) is a synonym of *human being*. It is a generalization covering anything to which the predicate man_1 is applied.

Practice Six hyponymy relations are mentioned in the informal dictionary sample above. In the space below, write out the six corresponding meaning postulates in the notation we have introduced. (Remember that the connective → expresses entailment, just as ≡ expresses paraphrase.)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

Feedback (1) $x\ MAN_2 \rightarrow x$ MALE (2) $x\ MAN_2 \rightarrow x$ ADULT (3) $x\ MAN_2 \rightarrow x$ HUMAN BEING (4) x WOMAN → x FEMALE (5) x WOMAN → x ADULT (6) x WOMAN → x HUMAN BEING

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Comment

Not everything that we know about these predicates is represented directly in these meaning postulates, but much can be arrived at simply by process of deduction from the information actually given. The predicates of a language all fit into an enormously complicated network of interrelationships. A predicate may be indirectly related through this network to thousands of other predicates. The semanticist wants the presentation of information in his dictionary to be economical, and so only includes the minimum number of meaning postulates from which it is possible to deduce all the (direct or indirect) sense relations between predicates.

Practice

Given below is a sample set of (partial) dictionary entries. In this, two hyponymy relations between predicates are directly represented. A further hyponymy relation, not directly represented, may be deduced from these entries. Write it down in the notation for meaning postulates.

METAL: x METAL → x MINERAL

MINERAL: x MINERAL → x SUBSTANCE

_____

Feedback

x METAL → x SUBSTANCE

Comment

In short, if it is stated that *metal* is a hyponym of *mineral*, and that *mineral* is a hyponym of *substance*, there is no need to state explicitly that *metal* is a hyponym of *substance*. This example illustrates a basic principle in the organization of the dictionary, namely that the information explicitly stated in it is less than the information that can be deduced from it. This is no excuse for lack of precision; the information that is not stated explicitly in dictionary entries must be deducible by the strict, simple, and clear laws of logical inference. Any of the logical connectives &, V, and ~ (Units 14 and 15) can be used in meaning postulates to express the various sense relations that occur in language. The negative connective ~ can be used to account for relations of binary antonymy.

Example

ASLEEP: x ASLEEP → ~ x AWAKE

Practice

Write partial dictionary entries for *male*, *abstract*, *open* (adj.) and *right* with meaning postulates accounting for the binary antonymy between these predicates and *female*, *concrete*, *closed* and *wrong* respectively.

(1) MALE _____ (2) ABSTRACT _____

(3) OPEN _____ (4) RIGHT _____

Feedback (1) x MALE → ~ x FEMALE (2) x ABSTRACT → ~ x CONCRETE
(3) x OPEN → ~ x CLOSED (4) x RIGHT → ~ x WRONG

Comment We draw attention now to a formal similarity between the hyponymy relation and another kind of semantic information about predicates, known as selectional restrictions. We bring out the intuitive notion of a selectional restriction in the following exercise.

Practice

(1) Can an idea be red? *Yes / No*
(2) Can pain be red? *Yes / No*
(3) Can a lump of metal be red? *Yes / No*
(4) Is it true to say that the predicate *red* can only be applied to concrete (i.e. non-abstract) things? *Yes / No*
(5) Is it true to say that if something is red, then it must be concrete (in the sense of non-abstract)? *Yes / No*

Feedback (1) No (2) No (3) Yes (4) Yes (5) Yes

Comment The restriction of the predicate *red* to things satisfied by the predicate *concrete* is a selectional restriction.

Practice

(1) Formulate a partial dictionary entry for *red*, expressing its relationship to *concrete*, using the meaning postulate notation.

_____

(2) An idea is a kind of abstraction, i.e. ideas are necessarily abstract. Write a meaning postulate expressing this relation between *idea* and *abstract*.

_____

(3) Are the two meaning postulates you have just written in any way distinguishable from each other by their formats as different types of meaning postulate? *Yes / No*

Feedback (1) RED: x RED → x CONCRETE (2) x IDEA → x ABSTRACT (3) No

Comment Intuitively, the hyponymy relation between predicates is often naturally expressed by the phrase '. . . *is a kind of* . . . ' e.g. *An idea is a kind of abstraction*, *A parrot is a kind of bird.* The arrow → in the

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meaning postulates of dictionary entries can be used to express both the '. . . *is a kind of* . . . ' relationship traditionally identified with hyponymy and the sort of relationship between *red* and *concrete* that we have called a selectional restriction.

In connection with the distinction traditionally drawn between hyponymy and selectional restrictions, we mention a corresponding distinction made between contradiction and anomaly.

Definition

CONTRADICTION is most centrally a logical term. The basic form of a logical contradiction is p & ~ p. Anything that is clearly an instance of this basic logical contradiction, e.g. *John is here and John is not here*, can be called a contradiction.

ANOMALY is semantic oddness (as opposed to grammatical oddness) that can be traced to the meanings of the predicates in the sentence concerned. Thus *Christopher is killing phonemes* is anomalous because the meanings of the predicates *kill* and *phoneme* cannot be combined in this way. Anomaly involves the violation of a selectional restriction.

Practice

For each sentence below, say whether it is a basic contradiction (C), anomalous (A), or semantically acceptable (OK).

(1) *Hilda's cow is a beautiful animal* — *C / A / OK*
(2) *Jack's courage chewed the bone* — *C / A / OK*
(3) *James sliced the idea* — *C / A / OK*
(4) *John is neither here nor not here* — *C / A / OK*
(5) *This contradictory sentence is not contradictory* — *C / A / OK*

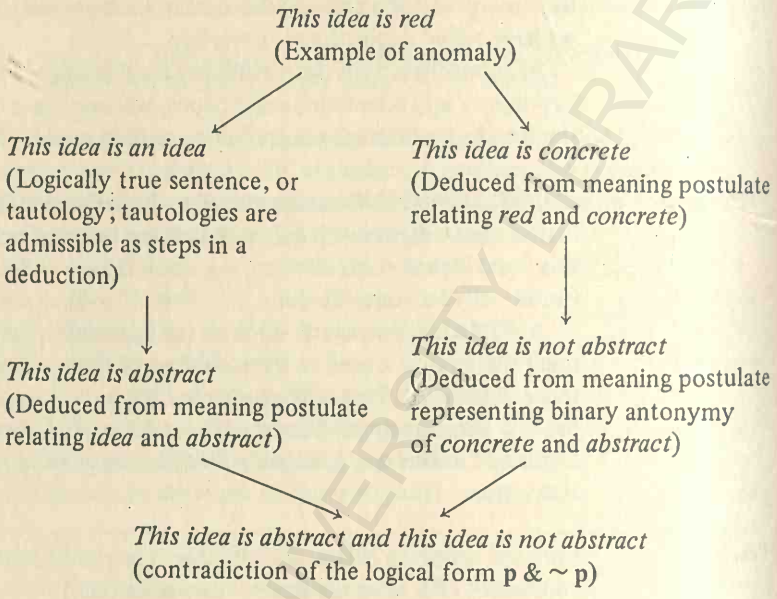
Feedback

(1) OK | (2) A (3) A (4) C (5) C

Comment

In this area, as indeed everywhere where one is dealing with the notion of sense, one has to ignore metaphorical and figurative interpretations of sentences. We are dealing with the strictly literal meanings of predicates.

In this book, we present a synthesis of the work of logicians and linguists interested in word meaning. We see the meanings of predicates and the meanings of the logical connectives as part of a single framework. We describe the meanings of predicates in logical terms (with meaning postulates) and so it is possible for us to reduce anomaly and contradiction to the same phenomenon. We treat anomaly as a special, indirect case of contradiction. That is, it is possible to deduce (by logical rules) a basic contradiction from an anomaly.

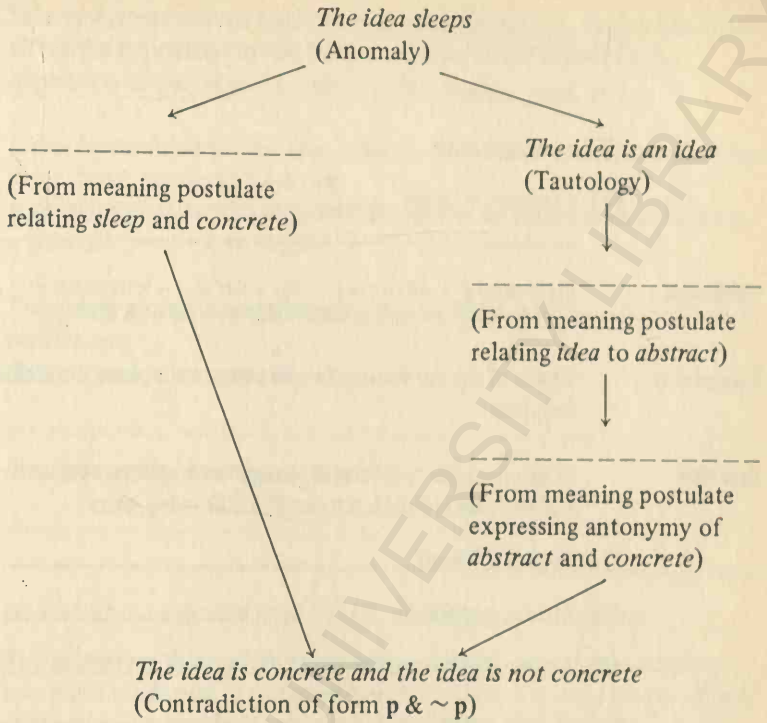

This idea is red
(Example of anomaly)
This idea is an idea
(Logically true sentence, or tautology; tautologies are admissible as steps in a deduction)
This idea is concrete
(Deduced from meaning postulate relating *red* and *concrete*)
This idea is abstract
(Deduced from meaning postulate relating *idea* and *abstract*)
This idea is not abstract
(Deduced from meaning postulate representing binary antonymy of *concrete* and *abstract*)
This idea is abstract and this idea is not abstract
(contradiction of the logical form p & ~ p)

Comment Study the above chain of deduction carefully. Note that each step (apart from the introduction of the tautology) is a direct interpretation of a meaning postulate. We will now get you to construct a similar chain of deduction, reducing a case of anomaly to a basic logical contradiction. (Actually the following exercise on deduction, though we have made it fairly precise and rigorous, is still informal and skirts around several technical problems involving logic and reference. We think it best to avoid these problems in an introductory text.)

Practice Given below are three partial dictionary entries.

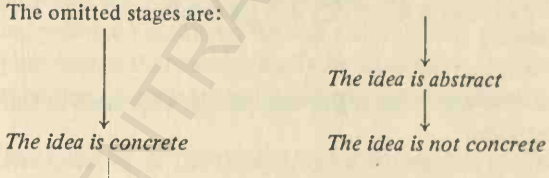
ABSTRACT: x ABSTRACT → ~ x CONCRETE
IDEA: x IDEA → x ABSTRACT
SLEEP: x SLEEP → x CONCRETE

We now give an incomplete chain of deduction reducing the anomalous sentence *the idea sleeps* to a basic contradiction. Your task is to fill in the omitted stages in the deduction.


The idea sleeps
(Anomaly)
(From meaning postulate relating *sleep* and *concrete*)
The idea is an idea
(Tautology)
(From meaning postulate relating *idea* to *abstract*)
(From meaning postulate expressing antonymy of *abstract* and *concrete*)
The idea is concrete and the idea is not concrete
(Contradiction of form p & ~ p)

Feedback

The omitted stages are:



Comment

So far, all our examples of meaning postulates have involved one-place predicates. Hyponymy relations between two-place predicates can also be expressed by meaning postulates.

Example

x FATHER y → x PARENT y

Comment

This is paraphraseable as: *If X is Y's father, then X is Y's parent.*

Practice

Write meaning postulates to account for the hyponymy between the following pairs of two-place predicates.

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(1) *son, child* _____

(2) *kick, strike* _____

(3) *hear, perceive* _____

(4) *brother, relation* _____

Feedback (1) x SON y → x CHILD y (2) x KICK y → x STRIKE y (3) x HEAR y → x PERCEIVE y (4) x BROTHER y → x RELATION y

Comment Cases of binary antonymy between two-place predicates can also be handled.

Practice Write meaning postulates, using the negative connective ~ to account for the antonymy between the following pairs:

(1) *same, different* _____

(2) *inside, outside* _____

(3) *ignore, pay attention to* _____

(4) *friend, enemy* _____

Feedback (1) x SAME y → ~ x DIFFERENT y (2) x INSIDE y → ~ x OUTSIDE y (3) x IGNORE y → ~ x PAY ATTENTION TO y (4) x FRIEND y → ~ x ENEMY y

Comment The converse relationship can also be expressed in terms of meaning postulates.

Practice Write meaning postulates, using ≡, to account for the synonymy of the following pairs:

(1) *own, belong to* _____

(2) *above, below* _____

(3) *before, after* _____

(4) *parent, child* _____

Feedback (1) x OWN y ≡ y BELONG TO x (2) x ABOVE y ≡ y BELOW x (3) x BEFORE y ≡ y AFTER x (4) x PARENT y ≡ y CHILD x

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Comment

Selectional restrictions apply to two-place predicates. Restrictions may affect the expression in the 'subject position' (the x slot) or the expression in the 'object position' (the y slot).

Example

Strike is restricted to concrete objects. *John struck the table* is fine, but *John struck motherhood* is not.
A meaning postulate to express this fact can be formulated as follows:
x STRIKE y → y CONCRETE

Practice

Formulate meaning postulates to account for the following selectional restrictions:

(1) *Heat* requires a concrete object.

---

(2) *Nourish* requires an animate object.

Feedback

(1) x HEAT y → y CONCRETE (2) x NOURISH y → y ANIMATE

Comment

The important thing when formulating meaning postulates involving two-place predicates is to remember that in our notation the variable x conventionally stands in subject position and y stands in object position. In the case of three-place predicates, we use z to indicate the third position. Hyponymy, converseness and selectional restrictions affecting the three-place predicates can all be expressed using the meaning postulate notation. We will now mention a couple of types of phenomena that cannot easily be handled by meaning postulates. We take these problem areas in ascending order of seriousness.

Practice

The question of the time at which a predicate applies to an individual is an important matter that we have so far neglected. Consider how it is relevant to some sense relations.

(1) Are *dead* and *alive* binary antonyms in just the same way as *open* and *closed*? *Yes / No*
(2) Can anything be dead without first having been alive? *Yes / No*
(3) Does *This object is dead* entail *This object was once alive but is no longer alive*? *Yes / No*
(4) Have you met in the logical notation used for meaning postulates any way of expressing the temporal notions contained in *once* and *no longer*? *Yes / No*

Feedback

(1) No (See next question.) (2) No (This is how we, and most English speakers, understand *dead*.) (3) Yes (4) No

Comment The factor of time is involved in a large number of other sense relations between predicates. Any predicate whose meaning involves a change of state (as *die*, *buy* and *sell* do) will need some mention of time in its dictionary entry.

Practice For each of the sentences below, write down a complex sentence containing a *before* and an *after* (or equivalent) that is entailed by the first sentence. We have done the first one for you.

(1) *John arrived at my house at noon* entails

John was not at my house before noon and he was at my house after noon

(2) *The Normans conquered England in 1066* (Hint: use the verb *control*)

(3) *Harry has forgotten the combination of his safe*

(4) *Etienne learnt to play the piano while he was in Paris*

Feedback (2) The Normans did not control England before 1066 and they did control it after 1066 (3) Harry once knew the combination of his safe and does not know it now (4) Etienne could not play the piano before he was in Paris but he could play it after he was in Paris.

Comment The need to mention time in descriptions of the senses of some predicates could be overcome by developing a more elaborate logic with the capacity to represent temporal relations and formulating meaning postulates within this more elaborate logical framework. We shall not investigate this possibility here, but move on to a problem with gradable antonymy (Unit 11).

The problem is that gradable predicates like *tall* and *short* do not have absolute meanings that can be conveniently summarized by meaning postulates. The context in which *tall* is used also contributes to its meaning. *Tall* in one context (e.g. of jockeys) means something different from *tall* in another context (e.g. of basketball players).

What we can say is that in a single context, i.e. applied to the same individual (e.g. Basil) with implicit comparison being made to just one set of individuals (e.g. Europeans), *tall* is the antonym of *short*.

Practice (1) Have any of the meaning postulates formulated so far

in this and the previous units been related to the notion of context? *Yes / No*

(2) Once we introduce the notion of context are we talking about utterances or sentences? _____

(3) Could one speaker truthfully say "Maggie is tall" and another speaker simultaneously, and referring to the same Maggie, truthfully say "Maggie is short"? *Yes / No*

Feedback

(1) No (2) utterances (3) Yes, because the two speakers might be making implicit comparisons with different standards (e.g. Europeans or Pygmies). Also implicit standards are not stable and constant; what is short for one person may be tall for another.

Comment

The example of gradable predicates like *tall*, *short*, *large*, *small*, *thin*, *thick*, etc. presents a problem for the enterprise of trying to represent all the semantic relations of a word in terms of meaning postulates. Meaning postulates are designed to account for necessary truths, i.e. truths which hold in all contexts.

Intuitively *tall* and *short* are just as clearly antonyms as *male* and *female*. Probably we should conclude that context plays a larger part in meaning than we have so far admitted, but this raises a difficulty for our whole framework. Maintaining the strict distinction between sentences and utterances, we cannot talk of the context of a sentence, for a sentence is an element in an abstract system of relationships. Meaning postulates are conceived within a framework for describing contextless sentences.

Summary

Meaning postulates play a central part in the semantic dictionary. Meaning postulates can be used to deduce information about sense relations, including hyponymy and some forms of antonymy, and about selectional restrictions and anomaly. Hyponymy relations and selectional restrictions are expressed by meaning postulates that look formally alike. Anomaly is seen as an indirect case of contradiction. Areas not easily handled by meaning postulates include change-of-state verbs and gradable predicates.

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UNIT 18
PROPERTIES OF PREDICATES

Entry requirements

ANALYTIC SENTENCE, CONTRADICTION, and ENTAILMENT (Units 9 and 10). If you feel you understand these notions, take the entry test below.

Entry test

Assume constancy of reference of names in all questions.

(1) Is *John is similar to himself* analytic (A), synthetic (S), or a contradiction (C)? *A / S / C*

(2) Is *John is different from himself* analytic (A), synthetic (S), or a contradiction (C)? *A / S / C*

(3) What sense relation holds between the two sentences:
John is married to Mary
Mary is married to John? _____

(4) What sense relation holds between the two sentences:
John is the father of Henry
Henry is the father of John? _____

(5) What sense relation holds between the following two sentences?
Jim is fatter than Kathleen and Kathleen is fatter than Neil
Jim is fatter than Neil _____

Feedback

(1) A (2) C (3) paraphrase (4) They contradict each other. (5) The first entails the second.
If you scored at least 4 correct out of 5 continue to the introduction below. Otherwise, review Units 9 and 10.

Introduction

In this unit we shall illustrate sense properties of predicates, i.e. information about the meanings of predicates that makes no mention of other predicates. We shall illustrate six sense properties that predicates may have. These six properties fall neatly into three groups of two, groups which might come under the headings of 'symmetry', 'reflexivity', and 'transitivity'. The two properties in each group are related to each other in exactly parallel ways. All of these properties are properties of two-place predicates.

Definition

Given a two-place predicate *P*, if, for any pair of referring expressions

X and *Y*, the sentence *XPY* ENTAILS the sentence *YPX*, then *P* is SYMMETRIC.

Example — *Same* is a symmetric predicate, since, for any *X* and *Y*, *X is the same as Y* entails *Y is the same as X*. (In other words, if *X* is the same as *Y*, then *Y* must be the same as *X*.)

Practice

(1) Do the following pairs of sentences entail each other?
Tanzania is different from Kenya
Kenya is different from Tanzania — *Yes / No*

(2) Is *different* a symmetric predicate? — *Yes / No*

(3) Does *Mary is married to Hans* entail *Hans is married to Mary*? — *Yes / No*

(4) Is *married to* a symmetric predicate? — *Yes / No*

(5) Does *Mary is devoted to Hans* entail *Hans is devoted to Mary*? — *Yes / No*

(6) Is *devoted to* a symmetric predicate? — *Yes / No*

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Feedback — (1) Yes (2) Yes (3) Yes (4) Yes (5) No (6) No

Comment — The dictionary can give the information that a predicate is symmetric, in the form of a meaning postulate. Alternatively one might simply use the expression 'Symmetric' as a shorthand for a meaning postulate conveying this information. We illustrate the two possible notations below with a partial dictionary entry for *different*.

Example — DIFFERENT: x DIFFERENT y ≡ y DIFFERENT x
DIFFERENT: Symmetric

Comment — We now come to the property of asymmetry, which is in a sense the opposite of symmetry.

Definition — Given a two-place predicate *P*, if the sentence *XPY* is a CONTRADICTORY of *YPX*, then *P* is an ASYMMETRIC predicate.

Example — *John is taller than Bill* is a contradictory of *Bill is taller than John*. Therefore *taller than* is an asymmetric predicate.

Practice

(1) Is *John is under the table* a contradictory of *The table is under John*? — *Yes / No*

(2) Is *under* asymmetric? — *Yes / No*

(3) Is *father of* as in *Alphonso was the father of Benito* asymmetric? — *Yes / No*

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(4) Is *admire* as in *Jimmy Carter admires Norman Mailer* asymmetric? *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes (4) No

Comment Asymmetry can be expressed as a meaning postulate in dictionary entries (or the term 'Asymmetric' can be used as a shorthand for a meaning postulate giving this information).

Example UNDER: x UNDER y → ~ y UNDER x
UNDER: Asymmetric

Practice Are the following predicates symmetric (S), asymmetric (A), or neither (N)?

(1) *Servant* as in *The Vizier is a servant of the Caliph* *S / A / N*
(2) *Love* (verb) *S / A / N*
(3) *Resemble* *S / A / N*
(4) *To the north of* *S / A / N*
(5) *Simultaneous with* *S / A / N*

Feedback (1) A (2) N (3) S (4) A (5) S

Comment We now move to the second group of sense properties, which might go under the heading of 'reflexivity'.

Definition Given a two-place predicate *P*, if for any single referring expression *X* (or for any pair of referring expressions *X* and *Y*, which have the same referent, e.g. *John* and *himself*), the sentence *XPX* (or the sentence *XPY*) is ANALYTIC, then *P* is a REFLEXIVE predicate.

Example The predicate *as tall as* is reflexive, because whenever we form a sentence with one referring expression as its subject and put another with the same referent after *as tall as*, as in *John is as tall as himself*, the result is an analytic sentence.

Practice

(1) Do *I* and *myself* have the same referent in *I am as old as myself*? *Yes / No*
(2) Is *I am as old as myself* analytic? *Yes / No*
(3) So is the predicate *be as old as* reflexive? *Yes / No*
(4) Are the capitalized predicates in the following sentences reflexive?

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(a) *John's doorkey is IDENTICAL TO itself.* *Yes / No*
(b) *John LOVES himself.* *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes (4) (a) Yes (b) No

Comment The example sentences above tended to be somewhat artificial. This is because the definition of reflexivity rests on that of analyticity and analytic sentences are rare in everyday language, since they are, by definition, uninformative. We move on now to the property of irreflexivity, which corresponds to reflexivity in the same way that asymmetry corresponds to symmetry.

Definition Given a two-place predicate *P*, if for any single referring expression *X* (or for any pair of referring expressions *X* and *Y* which have the same referent, e.g. *John* and *himself*) the sentence *XPX* (or the sentence *XPY*) is a CONTRADICTION, then *P* is an IRREFLEXIVE predicate.

Example The predicate *is taller than* is IRREFLEXIVE, because any sentence *X is taller than Y*, where *X* and *Y* have the same referent, is bound to be a contradiction.

Practice

(1) Do *Mary* and *herself* have the same referent in *Mary is different from herself*? *Yes / No*
(2) Is *Mary is different from herself* a contradiction? *Yes / No*
(3) So is the predicate *is different from* irreflexive? *Yes / No*
(4) Are the capitalized predicates in the following sentences irreflexive?
(a) *Mary LOVES herself.* *Yes / No*
(b) *Fred is SHORTER THAN himself.* *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes (4) (a) No (b) Yes

Practice Are the following predicates reflexive (R), irreflexive (I), or neither (N)?

(1) *distrust* *R / I / N*
(2) *identical to* *R / I / N*
(3) *co-extensive with* *R / I / N*
(4) *married to* *R / I / N*
(5) *contiguous with* *R / I / N*

Feedback (1) N (2) R (3) R (4) I (5) I

Comment We move finally to the third group of sense properties, which might go under the heading of 'transitivity'.

Definition Given a two-place predicate *P*, if for any trio of referring expressions *X*, *Y* and *Z*, the compound sentence *XPY and YPZ* ENTAILS the sentence *XPZ*, then *P* is TRANSITIVE.

Example *The King is in his counting house and his counting house is in his castle* entails *The King is in his castle*. So the predicate *in* is transitive.

Practice

(1) Is *above* in the following sentence a two-place predicate?
John's flat is above mine and mine is above Mary's *Yes / No*

(2) What does the above sentence entail concerning the relation between John's flat and Mary's?

John's flat is _____

(3) Is *above* transitive? *Yes / No*

(4) Are the capitalized predicates in the following sets of sentences transitive?

(a) *Socrates was WISER THAN Plato and Plato was WISER THAN Aristotle*
Socrates was WISER THAN Aristotle *Yes / No*

(b) *Mary's cat is the FATHER OF Gill's cat and Gill's cat is the FATHER OF Gerald's cat*
Mary's cat is the FATHER OF Gerald's cat *Yes / No*

Feedback (1) Yes (2) *above Mary's* (3) Yes (4) (a) Yes (b) No

Comment Just as asymmetry and irreflexivity correspond to symmetry and reflexivity, so intransitivity corresponds to transitivity.

Definition Given a two-place predicate *P*, if for any trio of referring expressions *X*, *Y* and *Z*, the compound sentence *XPY and YPZ* is a CONTRADICTORY of *XPZ*, then *P* is INTRANSITIVE.

Example *John is the father of Bill and Bill is the father of Sue* is incompatible with *John is the father of Sue*, so *father of* is intransitive.

Practice Are the following predicates intransitive?

(1) *enemy of* *Yes / No*
(2) *dislike* *Yes / No*
(3) *grandchild of* *Yes / No*
(4) *two inches taller than* *Yes / No*
(5) *jealous of* *Yes / No*

Feedback (1) No (2) No (3) Yes (4) Yes (5) No

Practice Are the following predicates transitive (T), intransitive (I) or neither (N)?

(1) *loves* *T / I / N*
(2) *respects* *T / I / N*
(3) *to the north of* *T / I / N*
(4) *lower than* *T / I / N*
(5) *the immediate superior of* *T / I / N*

Feedback (1) N (2) N (3) T (4) T (5) I

Practice The relationships between the six terms you have learned can be summarized in the following table. Write the words *transitive*, *reflexive*, *symmetric*, *intransitive*, *irreflexive*, and *asymmetric* in the appropriate boxes below.

	Definition involves one sentence.	Definition involves two sentences.	Definition involves three sentences.
Definition involves a necessary truth.			
Definition involves a necessary falsehood.			

Feedback

reflexive	symmetric	transitive
irreflexive	asymmetric	intransitive

Practice Classify the following predicates for each of the types of formal property dealt with above. Use the abbreviations R, S, T, IR, AS, IT. The first two are done for you.

(1) *same as* R, S, T
(2) *different from* IR, S
(3) *parent of* _____
(4) *ancestor of* _____
(5) *above* _____
(6) *in* _____
(7) *similar to* _____

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Feedback (3) IR, AS, IT (4) IR, AS, T (5) IR, AS, T (6) IR, AS, T (7) R, S

Definition Any relation expressed by a predicate that is reflexive, symmetric and transitive is called an EQUIVALENCE RELATION.

Example *same as* expresses an equivalence relation.

different from does not.

Practice Do the following predicates express equivalence relations?

(1) *is the same height as* *Yes / No*
(2) *is identical to* *Yes / No*
(3) *is similar to* *Yes / No*
(4) *is married to* *Yes / No*

Feedback (1) Yes (2) Yes (3) No, *similar* is not transitive. (4) No

Summary The formal properties of predicates defined and illustrated in this unit constitute part of the information given in the semanticist's dictionary. These formal properties, all involving two-place predicates, can be represented in the notation for meaning postulates.

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UNIT 19
DERIVATION

Entry requirements A prior understanding of MEANING POSTULATES (Unit 17) is useful, but not essential, for this unit.

Introduction So far we have treated the dictionary of a language simply as a static list of predicates. We have made the tacit assumption that, in order for a predicate to be able to bear meaning, it must in some sense already be present in the dictionary of the language concerned. But this neglects the obvious fact that words that we have never heard before, and which have perhaps never even been used before, can have clear meanings.

Practice Below are sentences containing nonce-words (words coined on the spur of the moment), not found in a dictionary. The nonce-words are capitalized. Give a paraphrase of each nonce-word.

(1) *We'll need to HIGHER this shelf a bit*

---

(2) *I find SCREWDRIVING with my left hand difficult*

---

(3) *We don't have a butcher: we have a BUTCHERESS*

---

(4) *John was DECOBWEBBING the ceiling with a long-handled mop*

Feedback (1) make higher (2) using a screwdriver (3) female butcher (4) removing the cobwebs from

Comment People create new words from old ones. The dictionary writer has the difficult task of shooting at a moving target. If he includes in his dictionary only words that have been attested until today, his dictionary will soon be out of date, as new words will have been coined and perhaps added to the everyday vocabulary of the language.

Practice Invent new English words synonymous with the following expressions.

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(Base your new words on existing words and try to ensure that the meaning of the new word is transparent, i.e. easily guessed at. Resist the temptation to be humorous.)

(1) *instrument for making things blunt* _____

(2) *the property of being easy to please* _____

(3) *the process of making something transparent* _____

(4) *having to do with giraffes* (adjective) _____

Feedback (1) *blunter* (2) *pleasability* (3) *transparentization* (4) *giraffish, giraffy*

Comment Although ordinary dictionary writers do not take the risk of actually predicting or anticipating new forms before they are attested, it is clear that there exist certain quite clear processes by which new words are born from old ones. These processes are called processes of derivation.

Definition DERIVATION is the process of forming new words according to a (fairly) regular pattern on the basis of pre-existing words.

Comment We start to analyse the processes of derivation in more detail by noting that a step in a derivation is usually actually not one process, but three simultaneous processes, namely:
a morphological process (e.g. changing the shape of a word by adding a prefix or suffix)

a syntactic process (changing the part of speech of a word, e.g. from verb to noun)

and
a semantic process (producing a new sense)

Example

	Morphological process	Syntactic process	Semantic process
laugh:laughter	add suffix *-ter*	change verb to noun	produce word denoting an act or an activity
teach:teacher	add suffix *-er*	change verb to noun	produce word denoting an agent
red:redness	add suffix *-ness*	change adjective to noun	produce word denoting a property

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Practice

Given below are pairs of words, one derived from the other. Fill in details of the morphological and syntactic processes involved in the derivation, as in the example chart above. For the moment we will not deal with the semantic details.

		Morphological process	Syntactic process
(1)	*wide* : *widen* (intransitive verb, as in *The road widened*)	_____	_____
(2)	*wasp* : *waspish*	_____	_____
(3)	*table* : *tabulate*	_____	_____
(4)	*bake* : *bakery*	_____	_____
(5)	*avoid* : *avoidable*	_____	_____
(6)	*honest* : *honesty*	_____	_____

Feedback

(1) Add suffix *-en*; change adjective to verb. (2) Add suffix *-ish*; change noun to adjective. (3) Add suffix *-ate* and modify original root word somewhat; change noun to verb. (4) Add suffix *-ery*; change verb to noun. (5) Add suffix *-able*; change verb to adjective. (6) Add suffix *-y*; change adjective to noun.

Comment

Note that all the conceivable syntactic changes involving the three major parts of speech (noun, verb, adjective) actually occur. In English, though not in some other languages, the morphological process of suffixation is more common than that of prefixation.

We give now some examples of derivation involving no morphological process at all, or 'zero-derivation', as it is sometimes called.

Example

Cook (agent noun) is derived from *cook* (transitive verb) just as *painter* (agent noun) is derived from *paint* (transitive verb). We just happen not to have a word *cooker*, meaning a person who cooks, in English. *Cook* (noun) is an example of zero-derivation.

Practice

The capitalized words in the sentence below are examples of zero-derivation. In each case: (a) give the part of speech of the capitalized word (including transitive or intransitive for verbs) arriving at your answer on the basis of its use in the given sentence; (b) give the part of speech of the word from which the example word is derived (the 'source word') and (c) give an example sentence using the source word. We have done the first one for you.

(1) *The workmen will WIDEN the road*

(a) transitive verb _____ (b) intransitive verb _____

(c) *The road WIDENS here* _____

(2) *A window cannot OPEN by itself*

(a) _____ (b) _____

(c) _____

(3) *We're going to PAPER the wall at the far end of the room*

(a) _____ (b) _____

(c) _____

(4) *I'm going for a SWIM*

(a) _____ (b) _____

(c) _____

(5) *We met some really FUN people at Jake's party*
(acceptable in many dialects)

(a) _____ (b) _____

(c) _____

(6) *The children are building a PRETEND house in the garden*

(a) _____ (b) _____

(c) _____

Feedback

(2) (a) intransitive verb (b) adjective (c) He jumped through the OPEN window
(3) (a) transitive verb (b) noun (c) The patterned PAPER on the wall is peeling off
(4) (a) noun (b) intransitive verb (c) Sue can't SWIM very well
(5) (a) adjective (b) noun (c) We had a lot of FUN at Jake's party
(6) (a) adjective (b) verb (c) Let's PRETEND to build a house

Comment

Such examples show that processes of derivation can often be 'invisible', because no morphological process is involved. When what is apparently the 'same' word is used in two different parts of speech, as in these examples, there is usually a semantic process involved as well, i.e. a change of sense of some sort. Thus, for example, *open* (the adjective) denotes a state, whereas *open* (the derived intransitive verb) denotes an action. The difference between states and actions is a difference in meaning, a semantic difference.

Just as derivation can sometimes involve both semantic and syntactic

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processes, but no morphological process, cases also occur of morphological and semantic processes without an accompanying syntactic process, i.e. without a change in part of speech.

Example

A comparative adjective, such as *larger*, is derived, by adding a suffix, from the adjective *large*. Even though both the source word and the derived form are adjectives, they have clearly distinct semantic properties, as we will now see.

Practice

(1) A how-many-place predicate is *large*? _____

(2) A how-many-place predicate is *larger* (*than*)? (Assume that the word *than* automatically gets supplied by the grammatical rules of the language when necessary.) _____

(3) What is the normal antonym of *large*? _____

(4) In terms of our classification of antonyms (Unit 11) are *large* and *small* binary antonyms (B) or gradable antonyms (G)? *B / G*

(5) What is the normal antonym of *larger than*? _____

(6) In terms of our classification of antonyms (Unit 11) are *larger than* and *smaller than* converses? *Yes / No*

(7) Is *larger than* a transitive predicate? (recall Unit 18) *Yes / No*

(8) Is *larger than* a symmetric predicate? *Yes / No*

(9) Is *larger than* an irreflexive predicate? *Yes / No*

(10) Can a one-place predicate, such as *large*, have such properties as transitivity, asymmetry, and irreflexivity? *Yes / No*

Feedback

(1) one-place (2) two-place (3) *small* (4) G (5) *smaller than* (6) Yes (7) Yes (8) No, it's asymmetric. (9) Yes (10) No

Comment

This is a good clear example of the kind of semantic differences that can exist between a derived word and its source word. The differences that we have just illustrated between *large* and *larger than* are found quite generally between gradable adjectives and their comparative forms.

Unfortunately, it is not always possible to describe differences in meaning between derived words and their sources in as clear terms as we could in the case of comparative adjectives derived from gradable adjectives. As a step towards developing a full account of these meaning differences, semanticists have invented a number of classificatory labels for the various kinds of derivation found in languages. These labels include such terms as 'inchoative', 'causative' and 'resultative'. We will define these terms and give examples of the derivations labelled with them.

Definition An INCHOATIVE form denotes the beginning, or coming into existence, of some state.

Example *Dark* (adjective) denotes a state. *Darken* (intransitive verb), as in *The sky darkened*, is the corresponding inchoative form, because it denotes the beginning of a state of darkness.

Practice For each of the words below (all of which denote states), give (a) the corresponding derived inchoative form, and (b) an example sentence containing the derived form. Remember that some derived forms may be morphologically identical to their sources, through zero-derivation.

(1) *dry* (a)_____ (b) _____

_____

(2) *clear* (a)_____ (b) _____

_____

(3) *hard* (a)_____ (b) _____

_____

(4) *flat* (a)_____ (b) _____

_____

(5) *soft* (a)_____ (b) _____

_____

Feedback

(1) (a) *dry* (b) My hair dried in the sun
(2) (a) *clear* or *clarify* (b) The sky cleared or The liquid clarified
(3) (a) *harden* (b) The clay hardened
(4) (a) *flatten* (b) The landscape flattened
(5) (a) *soften* (b) The tar on the road softened in the sun

Comment Examples such as these confirm that the morphological process most commonly used in English to derive an inchoative form is the suffixation of *-en*. Obviously, however, suffixation of *-en* is not the only device used. Zero-derivation is quite common with inchoatives.

Definition A CAUSATIVE form denotes an action which causes something to happen.

Example *Open* (transitive verb) is the causative form corresponding to *open* (intransitive verb). If one opens a door, for example, one causes it to

open (in the intransitive sense of *open*). In English zero-derivation is the commonest device for producing causative forms.

Practice

For each of the words below (all intransitive verbs) give (a) the corresponding causative form and (b) an example sentence containing it.

(1) *redden* (a)_____ (b) _____

_____

(2) *freeze* (a)_____ (b) _____

_____

(3) *move* (a)_____ (b) _____

_____

(4) *roll* (a)_____ (b) _____

_____

(5) *break* (a)_____ (b) _____

_____

Feedback

(1) (a) *redden* (b) John reddened his hands
(2) (a) *freeze* (b) We'll freeze these strawberries for Christmas
(3) (a) *move* (b) Someone has moved my desk
(4) (a) *roll* (b) Fiona rolled her pencil across the table
(5) (a) *break* (b) Be careful not to break the lampshade

Definition

A RESULTATIVE form denotes a state resulting from some action.

Example

Broken (used as an adjective) is the resultative form corresponding to *break* (transitive verb). The state of being broken results from the action of breaking.

Practice

For each of the words below (all transitive verbs), give (a) the corresponding resultative form and (b) an example sentence containing it, with the derived form used as an attributive adjective, i.e. before a noun.

(1) *melt* (a)_____ (b) _____

_____

(2) *flatten* (a)_____ (b) _____

_____

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(3) *freeze* (a)_____ (b) _____

_____

(4) *carve* (a)_____ (b) _____

_____

(5) *dry* (a)_____ (b) _____

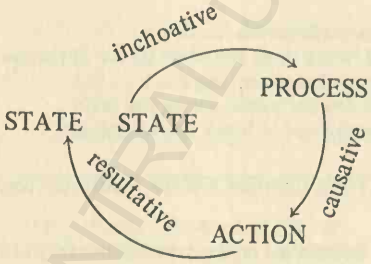
_____

Feedback

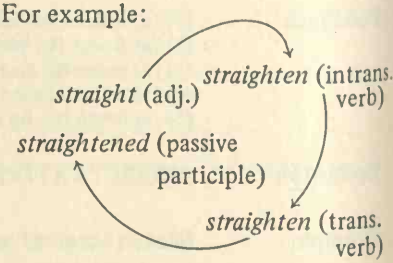
(1) (a) *molten* (or *melted*) (b) This crucible contains molten steel
(2) (a) *flattened* (b) They live in huts made of flattened oil-drums
(3) (a) *frozen* (b) Ice is frozen water
(4) (a) *carved* (b) There is an intricately carved fireplace in his room
(5) (a) *dried* (b) The roof was thatched with dried grass

Comment

The notions inchoative, causative, and resultative take one 'round in a circle', from words denoting states, through words denoting processes, through words denoting actions, and back to words denoting states. This relationship is shown diagrammatically below.



For example:



The derived resultative word (e.g. *straightened*) usually has a more specific meaning than the source word of the inchoative (*straight*).

In some cases, e.g. *straight – straightened*, *flat – flattened*, there are distinct state-denoting forms, one resultative and the other not. But in other cases, e.g. *bent*, *curved*, a single form has both a resultative and a non-resultative sense.

You should not get the impression from our diagrams above that it is easy to find foursomes of words like *straight – straighten – straighten – straightened* exemplifying the whole circular derivational process through inchoatives, causatives, and resultatives. Usually there is at least one gap.

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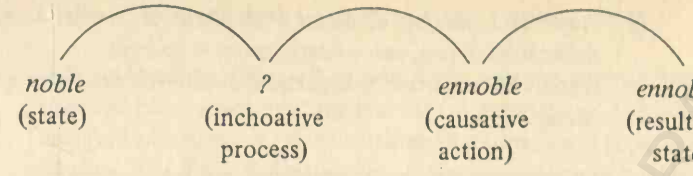

Comment

In this case, there happens to be no inchoative form corresponding to the state-denoting *noble* and the causative *ennoble*.

When we talk of 'gaps', we do not mean that the language simply has no way at all of expressing the meaning concerned. In the case of *noble*, for instance, one could use a phrase, such as *become noble*, to convey the inchoative meaning.

The existence of 'gaps' brings us to the notion of the productivity of various derivational processes.

Definition

A derivational process is completely PRODUCTIVE if it can be used to produce an existing derived word from EVERY appropriate source word.

Comment

It is doubtful whether any derivational process is actually completely productive, but some are very productive and others hardly productive at all.

Example

The resultative derivational process (e.g. *pierce – pierced*) is more productive than the inchoative derivational process. Picking at random any verb denoting a transitive action, one has a relatively good chance of identifying a corresponding resultative form, whereas the chances of finding an inchoative corresponding to a randomly picked state-denoting form are, by comparison, poorer.

Practice

Listed below are pairs of derivational processes with examples. By trying to think of further examples of each derivational process, make an informed guess about which member of each pair is the more productive.

(1) Adverbial *-ly* (e.g. *happy – happily, bumpy – bumpily, quick – quickly*)
Female *-ess* (e.g. *sculptor – sculptress, actor – actress*)

---

(2) Nominal *-ness* (e.g. *red – redness, empty – emptiness*)
Nominal *-y* (e.g. *honest – honesty*) (Only consider the derivation of nouns from adjectives by suffixation of *-y*, i.e. we're not concerned here with, e.g. *beef – beefy*, where an adjective is derived from a noun.)

---

(3) Adjectival *-ine* (e.g. *elephant – elephantine, crystal – crystalline*)
Adjectival *-y* (e.g. *cat – catty, sport – sporty*)
(Ignore the fact that this particular derivational process is somewhat 'slangy'.)

---

(4) Agentive *-er* (e.g. *bake – baker, train – trainer*)
Locative *-ery* (e.g. *bake – bakery, bind – bindery*)

---

(5) Negative adjectival *dis-* (e.g. *honest – dishonest, ingenuous – disingenuous*)
Negative adjectival *un-* (e.g. *happy – unhappy, welcome – unwelcome*)

Feedback

(1) Adverbial *-ly* is more productive than female *-ess*. (2) Nominal *-ness* is more productive than nominal *-y*. (3) Adjectival *-y* is more productive than adjectival *-ine*. (4) Agentive *-er* is more productive than locative *-ery*. (5) Negative adjectival *un-* is more productive than negative adjectival *dis-*.

Comment

In the above practice we have identified derivational processes by at least two terms, typically a syntactic term (e.g. adverbial) and a morphological term (e.g. *-ly*), and sometimes a semantic term (e.g. agentive). It is necessary to do this because often the same morphological process can correlate with different semantic and/or syntactic processes. We illustrate this in practice below.

Practice

The suffix *-ry* (or *-ery*) is associated with a number of different semantic classes of words. The most important of these can be labelled as
(a) occupation/activity/behaviour (as in *archery* or *tomfoolery*)
(b) physical location (as in *bakery*)
(c) collection of objects (as in *cutlery*)
For each of the words listed below, say which of these three semantic classes it belongs to. Use the letters (a), (b), (c), as above, to label the classes.

(1) *crockery* _____
(2) *dentistry* _____
(3) *finery* _____
(4) *forestry* _____
(5) *grocery* _____
(6) *gunnery* _____
(7) *jewelry* _____

Feedback (1) (c) (2) (a) (3) (c) (4) (a) (5) (b) (6) (a) (7) (c)

Comment Strictly speaking, there are at least three separate derivational processes involved here, which we may label as (a) Activity *-ry*, (b) Location *-ry*, and (c) Collection *-ry*. None of these three processes is particularly productive. The third, Collection *-ry*, is less productive in modern English than the other two.

Words which are the product of derivational processes are best described within the dictionary with their own individual dictionary entries, which include information about the nature of the derivational processes involved. We give examples below of the kind of (partial) dictionary entries that we envisage for derived forms.

Example LARGER: COMPARATIVE of LARGE
WIDEN$_1$: INCHOATIVE of WIDE
WIDEN$_2$: CAUSATIVE of WIDEN$_1$

Practice Using terms drawn from causative, inchoative, resultative, comparative, feminizer, negative, formulate partial dictionary entries along the above lines for the following words, showing their relationships with other words.

(1) *unpleasant* _____

(2) *tigress* _____

(3) *burnt* _____

(4) *smellier* _____

(5) *shake* (transitive verb) _____

Feedback (1) UNPLEASANT: NEGATIVE of PLEASANT (2) TIGRESS: FEMINIZER of TIGER (3) BURNT: RESULTATIVE of BURN (4) SMELLIER: COMPARATIVE of SMELLY (5) SHAKE$_2$: CAUSATIVE of SHAKE$_1$ (where *shake*$_1$ is the intransitive verb)

Comment Terms like negative, inchoative, feminizer, as used here, have a similar function to other technical terms which may be used in dictionary entries, such as symmetric, transitive, reflexive, etc. Whereas these latter terms describe sense properties of predicates, terms like negative, inchoative, etc. describe complex sense relations between predicates. Thus these terms are parallel to the technical semantic terms hyponym and converse which also describe sense relations between predicates. And just as the terms symmetric, transitive, etc. can be regarded as shorthand for information spelled out in exact detail in meaning

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postulates, so too terms like causative, negative, etc. stand for somewhat complex sense relations whose details can be made explicit by meaning postulates.

Example

The dictionary entry given above for *shake*$_2$, namely
SHAKE$_2$: CAUSATIVE of SHAKE$_1$
can be formulated alternatively as
SHAKE$_2$: x SHAKE$_2$ y → x CAUSE (y SHAKE$_1$)
Here CAUSE represents the English predicate *cause*. This meaning postulate captures the entailment relation between sentences such as *Patrick shook the table* and *Patrick caused the table to shake*. (It is to be understood that the predicate *cause* will have in its own dictionary entry a meaning postulate as follows:

x CAUSE p → p

This accounts for the possibility of the inference *The table shook* from *Patrick caused the table to shake.*)

Comment

It is possible in principle to give definitions in logical terms of any semantic relationship between a 'source' predicate and a derived predicate. Such definitions would in many cases be quite complex, and some would even involve devising extensions to the basic logical notation we have adopted in this book (e.g. to account for time and degree). We will not pursue the matter of such definitions further, and we will also not look at any different types of derivational process in addition to those we have already discussed (i.e. inchoative, etc.), even though there are many further such processes to be found. We hope to have established the basic point that the meanings of derived forms can be represented in dictionary entries in relatively straightforward ways along the general lines adopted in this book.

Finally in this unit, we take up a matter suggested by the above discussion, that of suppletion.

Definition

SUPPLETION is a process whereby, in irregular and idiosyncratic cases, substitution of a MORPHOLOGICALLY UNRELATED form is associated with the specific semantic and/or syntactic processes normally accompanying a morphological process.

Example

Bad – worse is a case of suppletion. *Worse* is clearly semantically related to *bad* in exactly the same way as, for example, *larger* is related to *large*, but there is no morphological relationship between the two words, i.e. there is no phonetic similarity between them.

Practice

Give the suppletive forms indicated in each case below:

(1) The ordinal numeral corresponding to the cardinal numeral *one* (as, for example, *seventh* corresponds to *seven*) _____

(2) The ordinal numeral corresponding to the cardinal *two* _____

(3) The superlative form of *good* (as *largest* is the superlative of *large*) _____

(4) A plural form of *person* (a more colloquial form than *persons*) _____

Feedback (1) *first* (2) *second* (3) *best* (4) *people*

Comment The format of dictionary entries and the method of stating semantic relationships between predicates in no way require semantically related predicates to be morphologically related also. Thus it is just as easy to state a semantic relationship between morphologically unrelated forms (i.e. *bad – worse*) as between morphologically related forms (e.g. *large – larger*). Where we see a semantic relationship between morphologically unrelated forms, dictionary entries can express this, as in the examples below.

Example WORSE: COMPARATIVE of BAD

KILL: CAUSATIVE of DIE

Practice Suggest (partial) dictionary entries for the first word in each of the pairs below, making clear its semantic relationship with the second word of the pair.

(1) *melt* (intransitive verb), *liquid* _____

(2) *create, exist* _____

(3) *petrify* (intransitive verb), *stone* (adjective) _____

(4) *bring, come* _____

(5) *take, go* _____

Feedback (1) MELT: INCHOATIVE of LIQUID (2) CREATE: CAUSATIVE of EXIST (3) PETRIFY: INCHOATIVE of STONE (4) BRING: CAUSATIVE of COME (E.g. John brought Liz to our house entails John caused Liz to come to our house.) (5) TAKE: CAUSATIVE of GO (E.g. Jim took his car to Egypt entails Jim caused his car to go to Egypt.)

Comment

We have only given partial dictionary entries here. The senses of words like *bring* and *take* are in fact quite complex, and we have merely drawn attention to one aspect of their meanings, namely their relationships with the meanings of *come* and *go*, respectively.

Summary

We have defined and illustrated the notion of derivation in this unit, emphasizing its morphological, syntactic, and semantic components and the issue of productivity. We have only drawn our illustrations from a relatively small (and relatively well-understood) set, concentrating on the notions inchoative, causative, resultative, and comparative. There are many other derivational processes relating pairs of words: we have only skimmed the surface of this topic. The semantic relationship between a 'source' word and a derived word can be shown in dictionary entries.

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UNIT 20
PARTICIPANT ROLES

Entry requirements

A grasp of logical formulae for SIMPLE PROPOSITIONS (Unit 13), MEANING POSTULATES (Unit 17), DERIVATION (Unit 19). If you feel familiar with these, take the entry test below. Otherwise, review the relevant units.

Entry test

(1) Give a logical formula for *The workmen spoiled the carpet with their boots* (using w, c and b as logical names).

---

(2) Similarly give a logical formula for *The boots spoiled the carpet*

---

(3) What is the relationship between the two predicates *boil* (*boil*$_1$ and *boil*$_2$) in *The liquid boiled* and *John boiled the liquid*?

---

(4) Which of the following meaning postulates correctly describes the relationship between the two predicates *boil*? Circle your choice.

(a) x BOIL$_2$ y → x CAUSE (y BOIL$_2$)
(b) x BOIL$_2$ y → y CAUSE (x BOIL$_1$)
(c) x BOIL$_2$ y → x CAUSE (y BOIL$_1$)

Feedback

(1) w SPOIL c b (2) b SPOIL c (3) *boil*$_2$ is the causative of the inchoative *boil*$_1$ (4) (c)
If you got at least 3 out of 4 correct, proceed to the introduction. Otherwise, review the relevant unit(s).

Introduction

The basic semantic ingredients of a common type of simple sentence, as we have analysed it, are (1) a predicate, and (2) a number of referring expressions. The referring expressions correspond to actual things, persons, etc. in the world more or less directly, *via* the device of reference. The function of the predicate is to describe the specific relationship between the things, persons, etc. referred to, i.e. to describe how the things and/or people, participate in the particular situation described. In this unit, we shall investigate a proposed way of being more precise

about the different ways in which things and people participate in some of the real-world situations described by sentences.

Practice

We start with a well-known example.

(1) Which are the referring expressions in the sentence *John opened the door with the key*?

---

(2) What is the predicate which relates these referring expressions in the sentence concerned?

---

(3) Picture to yourself the situation described by *John opened the door with a key*. Could the sentence *The key opened the door* also be used to describe this same situation (even though giving less information about it, by not mentioning John)? *Yes / No*

(4) Could this same situation also be described (even less informatively) by the bare sentence *The door opened*? *Yes / No*

(5) In the situation described there is a door.
(a) Is it opening? (b) Or is it being opened? (c) Or both opening and being opened?

(6) There is a key in this situation, too.
(a) Is it opening the door? (b) Or is it being used to open the door? (c) Or is it both opening the door and being used to open the door?

Feedback

(1) *John, the door, the key* (2) *open* (3) Yes (4) Yes (5) (c) (6) (c)

Comment

In all three sentences:
John opened the door with the key
The key opened the door
The door opened
the roles played by the participant objects (door, key) and people (John) do not vary. In this example, the roles played by the participants are labelled as follows:

John	AGENT
the door	AFFECTED
the key	INSTRUMENT

We give rough definitions of these terms below, but you should be warned that it will not be easy to apply these definitions in all cases.

Definition

The AGENT of a sentence is the person deliberately carrying out the action described, e.g. John in *John opened the door.*

The AFFECTED participant is the thing (not usually a person, although it may be) upon which the action is carried out, in many cases the thing changed by the action in the most obvious way, the door in our example.

The INSTRUMENT is the thing (hardly ever a person) by means of which the action is carried out, the key in our example.

Practice

(1) Identify the Agents in the following sentences by circling them as in (a).

(a) (*A burglar*) *ransacked my house*

(b) *My mother's Imari bowl was broken by a thief*

(2) Identify the Affected objects (or persons) in the following:

(a) *Muriel dealt the cards carefully to each player*

(b) *The tree was felled by a single blow from Paul's axe*

(3) Identify the Instruments in the following:

(a) *Seymour sliced the salami with a knife*

(b) *Hamish used a screwdriver to open the tin*

Feedback

(1) (b) *a thief* (2) (a) *the cards* (b) *the tree* (3) (a) *a knife* (b) *a screwdriver*

Comment

The notion of role (e.g. Agent, Instrument, etc.) adds a new dimension to our view of the meanings of sentences. In rough logical formulae, we could represent *John opened the door with the key* as **j OPEN d k**, treating *open* as a three-place predicate. *The key opened the door* would be **k OPEN d** (with *open* as a two-place predicate), and *The door opened* would be **d OPEN** (*open* as one-place predicate). This notation fails to show that in all three cases the door is involved in exactly the same way in the action of opening, and it also fails to show that in the first two cases the key's participation in the action is the same.

One could augment the logical formulae with this information thus:

```
AGENT        AFFECTED  INSTRUMENT
  |             |           |
  j    OPEN     d           k

INSTRUMENT        AFFECTED
    |                |
    k      OPEN      d

AFFECTED
   |
   d      OPEN
```

This makes it clear, for example, that no matter whether *the door* appears before or after the verb *opened* (or whether its logical name **d**

is mentioned first or second in the logical formula), the way in which the door participates in the act of opening described is the same: the door is the object AFFECTED in this situation.

Practice

For each of the sentences given below, write out an augmented logical formula as in the examples just given, indicating what objects or persons play the roles of Agent, Affected, and Instrument. (Use the abbreviations AG, AF, IN. We have done the first one for you.)

(1) *Floyd smashed the glass with the hammer*

AG AF IN
f SMASH g h

(2) *The hammer smashed the glass*

(3) *The glass smashed*

(4) *Crippen dissolved the body with the acid*

(5) *The acid dissolved the body*

(6) *The body dissolved*

Feedback

(2) IN AF (3) AF (4) AG AF IN
h SMASH g g SMASH c DISSOLVE b a

(5) IN AF (6) AF
a DISSOLVE b b DISSOLVE

Comment

The position of a referring expression in a sentence is only very loosely correlated with the role of its referent in the situation described. Let us distinguish three different grammatical positions in the sentence, as follows:

Subject position – preceding main verb
Object position – immediately following main verb

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Complement – after the verb, but not immediately, often after a preposition

Example

SUBJECT		OBJECT	COMPLEMENT
John	*opened*	*the door*	*with the key*

Practice

The following chart provides a box for each logically possible combination of role and grammatical position. For instance, the top left-hand box corresponds to the occurrence of an Agent in subject position.

	Subject	Object	Complement
Agent			
Affected			
Instrument			

Among the sentences below, you will find examples illustrating some of these possibilities. Put the numbers of the sentences in the appropriate boxes above. (Some numbers will go in more than one box; some boxes will remain blank.)

(1) *The dynamite blew the safe open*
(2) *The hut was set alight by vandals*
(3) *Alfred burnt the cakes*
(4) *Charles built Emily a mahogany bookcase*
(5) *Sidney swotted the fly with his hat*

Feedback

3, 4, 5		2
2	1, 3, 5	4
1		5

Comment

Certain clear tendencies in the relationship between grammatical position and participant role emerge from this chart (which is quite representative of the general situation). We get you to identify these trends below.

Practice

(1) Which two combinations of participant role with grammatical position are the most common?

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(2) Which two combinations are not represented in the chart, and are generally rare in the language at large?

---

(3) Which grammatical position, or positions, is, or are, the most versatile, i.e. which position(s) can be used for the greatest variety of different participant roles (as far as we have seen)?

---

(4) Which grammatical position is least versatile?

Feedback (1) Agent – Subject and Affected – Object are the most frequent correlations. (2) Agent in Object position, and Instrument in Object position (3) Subject position and Complement position are the most versatile. (This is partly, but only partly, the result of our rather broad definition of Complement position.) (4) Object position is the least versatile.

Comment We emphasize that participant roles, such as Agent, Affected and Instrument are defined semantically, in terms of the meanings of sentences, and not grammatically, in terms of position in sentences. Clearly, there is some systematic relationship between the semantic roles and the grammatical positions, but it is evidently a complicated relationship.

We will now mention several further roles that have been identified in the semantic literature, location and beneficiary.

Definition The role of LOCATION is played by any expression referring to the place where the action described by a sentence takes place.

The BENEFICIARY is the person for whose benefit or to whose detriment the action described by the sentence is carried out. It is usually assumed that the Beneficiary, if mentioned, is distinct from both the Agent and the Affected.

Example

AFFECTED LOCATION
Caesar was assassinated in Rome

AGENT BENEFICIARY AFFECTED
Keith gave Gill a replica of the Venus de Milo

AGENT		BENEFICIARY	AFFECTED
The terrorists	*sent*	*the Prime Minister*	*a letter bomb*

Practice

(1) Identify the Locations in the following sentences by circling them:
   (a) *It is windy in Edinburgh*
   (b) *I'm meeting Dick at Waverley Station*
   (c) *Tallahassee is humid in summer*

(2) Identify the Beneficiaries in the following:
   (a) *Ruth knitted Bryan a sweater*
   (b) *Alan was sent a special offer from the Reader's Digest*
   (c) *Glenn bought a micro-computer for his son*

Feedback

(1) (a) in Edinburgh (b) at Waverley Station (c) Tallahassee (2) (a) Bryan (b) Alan (c) his son

Comment

With these two new roles, we again see the versatility of Subject position and Complement position. Both roles are found correlated with both grammatical positions. Note further that in Complement position each role has one or more characteristic prepositions that is used to signal it. We will bring these facts out in practice.

Practice

(1) In sentences in the previous section, two different prepositions are used in connection with the expression of Location. What are they?

_____

(2) Write down three other prepositions that can be used to express Location.

_____

(3) In sentence (2) (c) above, what preposition is used to express the Beneficiary role?

_____

(4) Give another preposition that can be used to express the Beneficiary role. (Think of paraphrases of the examples used above.)

_____

(5) When the Instrument role is expressed in the Complement of a sentence, what preposition is typically used to express it?

_____

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(6) When the Agent role is expressed in the Complement of a sentence (as in passive sentences) what preposition expresses this role?

_____

Feedback (1) *in, at* (2) *on, under, near, by, above*, etc. (3) *for* (4) *to* (5) *with* (and sometimes *by*) (6) *by*

Comment We have so far given definitions and examples of five different roles. Some proponents of the theory of roles envisage that it is necessary to define further roles, perhaps bringing the total of roles to about a dozen or so. But all agree on the need to postulate few roles: the more roles one postulates, the weaker is the theory of roles. Agreeing on what roles are necessary and how to define them has proved very difficult. We illustrate some interesting cases in this respect below.

Practice

(1) In the situation described by *Napoleon saw Josephine*, is any action necessarily taking place? *Yes / No*

(2) Can we infer from *Napoleon saw Josephine* that Napoleon deliberately saw her? *Yes / No*

(3) And can we infer that Josephine deliberately involved herself in this event of seeing? *Yes / No*

(4) Is it obvious who, if anyone, is Agent in *Napoleon saw Josephine*? *Yes / No*

(5) Who, if anyone, is Affected in *Napoleon saw Josephine*? _____

(6) Do any of the roles Location, Beneficiary, or Instrument fit the part played by Josephine in this episode? *Yes / No*

Feedback (1) No (2) No (3) No (4) No (5) If anyone, it is Napoleon. (6) No

Comment What such examples show is that in the area of roles, as everywhere else in semantics, there are cases which require further analysis and further elaboration of the theoretical and descriptive framework. Such examples do not necessarily invalidate the notion of roles altogether. Later in this unit we shall mention other areas where the roles as we have defined them cannot be assigned clearly. Meanwhile we look at another interesting case that provokes thought in relation to the idea of roles.

Practice

(1) Do the sentences *Ahmed bought a camel from Abdullah* and *Abdullah sold a camel to Ahmed* describe the same event? *Yes / No*

(2) In the event described by these sentences, there are three participants, Ahmed, Abdullah, and the camel. Which one is the Agent? _____

(3) Might it be more satisfactory to relate the notion of Agent, not to the actual situation described, but rather to some specific sentence chosen to describe it? *Yes / No*

(4) Following this line of thought, would one then say that *Abdullah* was the Agent in the sentence with *buy*, and *Ahmed* the Agent in the sentence with *sell*? *Yes / No*

(5) Now, granting that *Ahmed* is the Agent in one sentence, but not in the other, is there still not some role which we feel Ahmed is playing in both sentences? What might this role be? _____

Feedback

(1) Yes (2) Not the camel, certainly, but either Ahmed or Abdullah (or both) could be thought of as the Agent. (3) Yes, if we insist on there only being one Agent per case. (4) No, the other way around (*Ahmed* the Agent in the sentence with *buy*, and *Abdullah* in the sentence with *sell*) (5) Yes, it seems that *Ahmed* could be regarded as the Beneficiary in both cases (and so, actually, could *Abdullah*).

Comment

Cases such as this raise the question of whether a referring expression can bear more than one role relation to the verb in a particular sentence. We will not go further into this matter here.

We will now show how information about participant roles can be included in the dictionary. Proponents of the notion of role envisage that in the dictionary entry for each verb in the language there will be a 'role-frame', indicating what roles must be, and what roles may be, mentioned in connection with the verb.

Example

OPEN: (AGENT) AFFECTED (INSTRUMENT)

This is part of the dictionary entry for the verb *open*. The parentheses indicate that the roles shown within them (i.e. Agent and Instrument) are optional with this verb, and the role not enclosed by parentheses, Affected, is obligatory. I.e. when describing some act of opening, one must mention what gets opened, and one may also mention who did the opening and what he did it with. Recall that in

John opened the door
The key opened the door
The door opened

the door is mentioned in all three sentences, but John and the key are not mentioned in all three sentences.

Practice

(1) What two roles are mentioned in *Julia planted a tree*? _____

_____

(2) What further role is mentioned in *Julia planted a tree in the garden*? _____

(3) What single role is mentioned in *A tree was planted*? _____

(4) Is the Agent role mentioned in some, but not all, of these examples? *Yes / No*

(5) Is the Location role mentioned in some, but not all, of these examples? *Yes / No*

(6) Is the Affected role mentioned in all of these examples? *Yes / No*

(7) Which of the following role-frames captures these facts correctly?
(a) (AGENT) (AFFECTED) (LOCATION)
(b) AGENT AFFECTED (LOCATION)
(c) (AGENT) AFFECTED (LOCATION)
(d) (AGENT) AFFECTED LOCATION

Feedback (1) Agent and Affected (2) Location (3) Affected (4) Yes (5) Yes (6) Yes (7) (c)

Practice Listed below are a number of verbs, with some example sentences containing them. On the basis of what occurs in all of the example sentences, and what only occurs in some of them, formulate a role-frame for the dictionary entry of each verb.

(1) BLOW UP: _____
Vacek blew up the tank with a hand grenade
The hand grenade blew up the tank
The tank blew up

(2) RAIN: _____
It's raining in Paris
It's raining

(3) CHASE: _____
John chased the ball to the bottom of the hill
The ball was chased to the bottom of the hill
The ball was chased

(4) GIVE: _____
John gave Mary a book
Mary was given a book
A book was given to Mary

(5) PUT: _____
Lucy put a log on the fire with the tongs

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Lucy put a log on the fire
A log was put on the fire

Feedback (1) BLOW UP: (AGENT) AFFECTED (INSTRUMENT) (2) RAIN: (LOCATION) (3) CHASE: (AGENT) AFFECTED (LOCATION) (4) GIVE: (AGENT) AFFECTED BENEFICIARY (5) PUT: (AGENT) AFFECTED (INSTRUMENT) LOCATION

Comment The Affected role, when it is permitted at all, is obligatory in these examples. The Agent role is frequently permitted, though never obligatory, in these examples. These two facts reflect a quite general trend in the language.

We will now point out a certain economy in the dictionary that the role-frame notation makes possible in the case of verbs which, like *blow up* and *open*, can appear in a non-passive form even when no Agent is mentioned.

Practice

(1) A how-many-place predicate is *shake* in *Patrick shook the table*? _____

(2) A how-many-place predicate is *shake* in *The table shook*? _____

(3) Does *Patrick shook the table* entail *The table shook*? *Yes / No*

(4) Would this entailment be accounted for in an analysis which assumed two separate verbs *shake*, one a two-place predicate and the other a one-place predicate, with (partial) dictionary entries as follows?
$SHAKE_1$: two-place, x $SHAKE_1$ y → y $SHAKE_2$, . . .
$SHAKE_2$: one-place . . . *Yes / No*

(5) Is it more economical to postulate a single verb *shake* with an optional Agent in its role-frame, as in
SHAKE: (AGENT) AFFECTED? *Yes / No*

Feedback (1) two-place (2) one-place (3) Yes (4) Yes (5) The role-frame notation is slightly more economical.

Comment We have compared the role-frame approach to dictionary entries with the logical, meaning postulate approach in order to show that, as far as we have seen, the two approaches are not incompatible. The two approaches have different emphases. Whereas logical approaches emphasize entailment relations between sentences, the role-frame approach concentrates more on the semantic relationships between referring expressions inside a sentence, that is, on the way in which the action denoted by a verb can be said to involve participants in a number of different roles.

Some of the differences between the two approaches are rather accidental. Thus the role-frame approach pays more attention to the roles typically expressed by adverbial phrases, such as Location and Instrument, which logical approaches frequently neglect. On the other hand, the role-frame approach generally pays little attention to the logician's insight that not only verbs, but also nouns, adjectives and prepositions are all semantically predicates. The role approach concentrates almost exclusively on verbs. We show below some of the difficulties which arise when one tries to generalize the idea of role to all predicates.

We consider first prepositions, which we take to be two-place predicates (three-place in the case of *between*).

Practice

(1) What is the predicator in *The bull is in the 40-acre field*? _____

(2) Stretching the definition of Location (p. 224) to include states as well as actions, would it seem reasonable to say that *the 40-acre field* played the role of Location in the above sentence? *Yes / No*

(3) Granted that we can assign Location to *the 40-acre field*, which of the other roles that we have seen (Agent, Instrument, Beneficiary, Affected) seems to be played by *the bull*? _____

(4) What is the predicator in *This book is for Louise*? (Again, assume that there is a predicator here.) _____

(5) Allowing Beneficiary to be applied in the case of states as well as actions, could one assign the Beneficiary role to *Louise* in this sentence? *Yes / No*

(6) If so, what role could one plausibly assign to *this book*? _____

Feedback

(1) *in* (2) Yes (3) None of the roles mentioned seems to fit particularly well. (4) *for* (5) Yes (6) Again, none seems to fit well.

Comment

None of the roles that we have mentioned so far seems to fit the case of the referring expressions in Subject position in these examples. Now let's look at some one-place predicates.

Practice

(1) What is the predicator in *That animal is a cow*? _____

(2) Does the referring expression *that animal* here seem to be in an Agent relationship with the predicate *cow*? *Yes / No*

(3) Does it seem to be in an Instrument relationship with the predicate *cow*? *Yes / No*

(4) Or Beneficiary perhaps? *Yes / No*
(5) Location? *Yes / No*
(6) What is the predicator in *This poppy is red*?
(7) Does the referring expression *this poppy* seem to bear any of the role relationships that we have mentioned to the predicate *red*? *Yes / No*

Feedback (1) *cow* (2) No (3) No (4) No (5) No (6) *red* (7) No

Comment These examples show that none of the roles mentioned so far (Agent, Instrument, Beneficiary, Location, Affected) fit the relation borne by a grammatical Subject to a noun, adjective, or preposition predicate. It is possible that proponents of the role idea will be able to define some suitable role for such cases. Meanwhile, it remains a gap in the role theory.

Summary The notion of participant role adds a new dimension to the study of sense relations. Participant roles indicate relationships between a verb and the referring expressions in a sentence. We have illustrated a number of such roles that have been proposed, namely Agent, Affected, Instrument, Location and Beneficiary. We have seen how dictionary information involving roles can be presented and we have mentioned several problems with the notion of participant role.

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6 Interpersonal meaning

UNIT 21
SPEECH ACTS

Entry requirements

SENTENCES and UTTERANCES (Unit 2). If you feel you are familiar with these notions take the entry test below.

Entry test

Answer the following questions.

(1) If Fred and Jack both greet each other one morning with "How are you today?", have they both made the same utterance? *Yes / No*

(2) How many different sentences are involved when Jack and Fred greet each other as above? _____

(3) Is it conceivable to give the exact time, date and place of an utterance? *Yes / No*

(4) Is a sentence an event? *Yes / No*

(5) Can it be said in the case of the English sentence *The man hit the bust of Stalin with a hammer* used out of context as an example, which particular person in the world is the referent of *the man*? *Yes / No*

(6) In making the utterance "Elvis is great", would a speaker normally be carrying out an act of referring, i.e. referring to some particular person? *Yes / No*

Feedback

(1) No (2) One (3) Yes (4) No (5) No (6) Yes

If you have scored less than 5 correct out of 6, you should review Unit 2. Otherwise, continue to the introduction below.

Introduction

'Actions speak louder than words' is a well-known proverb. But we will show in this unit that the alleged distinction between acts and speech is a misleading oversimplification. We will show how, to a large extent, speech is action, and that language can actually be used to do things.

Comment

When a speaker, in appropriate circumstances, makes an utterance containing a referring expression, he carries out a certain act, an act of referring. Referring is typically a linguistic act, but we shall see that it is possible to carry out all sorts of other acts using language. We will start with another obviously linguistic act, that of stating or asserting.

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Definition An ACT of ASSERTION is carried out when a speaker utters a declarative sentence (which can be either true or false), and undertakes a certain responsibility, or commitment, to the hearer, that a particular state of affairs, or situation, exists in the world.

Example If I say, "Simon is in the kitchen", I assert to my hearer that in the real world a situation exists in which a person named Simon is in a room identified by the referring expression *the kitchen.*

Comment There was once a strong tendency among semanticists to assume that there was not much more to the meanings of sentences (and utterances) than this kind of correspondence between sentences (and utterances) and the world. This view has been called the Descriptive Fallacy. We give a simple version of this below.

Definition The DESCRIPTIVE FALLACY is the view that the sole purpose of making assertions is to DESCRIBE some state of affairs.

Example According to the Descriptive Fallacy view, my only purpose in uttering "Simon is in the kitchen" would be to describe a particular state of affairs, and nothing more.

Comment The Descriptive Fallacy view is not wholly wrong. An element of description is involved in many utterances. But description is not indulged in only for its own sake. There is usually a more basic purpose behind an utterance.

Practice Would the main purpose of making the following assertions normally be simply to describe some existing state of affairs in the world?

(1) "There is a wasp in your left ear" *Yes / No*
(2) "Someone has broken the space-bar on my typewriter" No *Yes / No*
(3) "This gun is loaded" *Yes / No*
(4) "You are a fool" *Yes / No*
(5) "I love you" *Yes / No*

Feedback It is doubtful whether one's main purpose in making an assertion is ever simply to describe an existing state of affairs in the world. So we would suggest that the answer in all the above cases is No.

Practice For each of the above five utterances state one or two purposes that the speaker may have had in mind when uttering them. As a guide, we have done the first one for you.

(1) To warn the hearer of the danger of being stung, or to shock him (or both) _____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

Feedback

(2) To complain about the damage, or to apologize to someone about to borrow the machine, etc. (3) As a warning during an armed robbery, or as an example during an elementary weapon-training lesson for soldiers, etc. (4) To insult the hearer, or, between intimates, to tease him, or to impress a bystander with one's directness of manner, etc. (5) To reassure the hearer, or to console him, or to make him feel indebted, or to please him, etc.

Comment

All of these answers mention acts of one kind or another. Thus warning, shocking, complaining, apologizing, insulting, reassuring, etc. are all acts. They are all things that we DO, using language. An important part of the meaning of utterances is what speakers DO by uttering them. Acts such as teasing, insulting, etc. are aspects of utterance meaning and not of sentence meaning. We reinforce this conclusion below.

Practice

Take a sentence such as *There's a piece of fish on the table.*

(1) Could this sentence be uttered as a means of complaining to a waiter in a restaurant that a table had not been cleared properly? *Yes / No*

(2) Could it, in other circumstances, be uttered to warn one's husband or wife not to let the cat in the kitchen? *Yes / No*

(3) Could it, in still other circumstances, be uttered to reassure one's husband or wife that his or her lunch has not been forgotten? *Yes / No*

(4) Could it, in a different situation, be used to incriminate a child who had raided the refrigerator? *Yes / No*

(5) Are individual sentences generally identifiable with single specific acts that are carried out by uttering them? *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes (4) Yes (5) No, one sentence can generally be uttered to perform a wide variety of different acts, depending on who utters it and where, when, and why it is uttered.

Comment Quite contrary to the popular belief that actions and words are entirely distinct, many actions can actually be performed with words. Now we will look at some actions, usually, but not always, involving human objects, that can be performed either by physical means, such as a gesture, or by making an appropriate utterance.

Practice

(1) Can you congratulate someone by a pat on the back, or a hug? *Yes / No*
(2) Can you congratulate someone by uttering "Well done"? *Yes / No*
(3) Can you bid at an auction by nodding? *Yes / No*
(4) Can you bid at an auction by saying "Eleven pounds"? *Yes / No*
(5) Can you promise someone something by a nod? *Yes / No*
(6) Can you promise someone something with an utterance beginning "I promise . . . "? *Yes / No*

Feedback (1)–(6) Yes

Comment A large number of acts, then, can be performed either by means of an utterance or by some other means. We have also seen two rather special kinds of acts that can only be performed by means of an utterance; these are the specifically linguistic acts of referring and asserting.

We will now spend a little time on an interesting distinction that can be made now that we have established the basic point that assertive utterances do not merely describe some state of affairs, but also carry out acts. This is the distinction between performative utterances (and sentences) and constative utterances (and sentences).

Definition A PERFORMATIVE utterance is one that actually describes the act that it performs, i.e. it PERFORMS some act and SIMULTANEOUSLY DESCRIBES that act.

Example "I promise to repay you tomorrow" is performative because in saying it the speaker actually does what the utterance describes, i.e. he promises to repay the hearer the next day. That is, the utterance both describes and is a promise.

By contrast, the utterance "John promised to repay me tomorrow" although it describes a promise is not itself a promise. So this utterance does not simultaneously do what it describes, and is therefore not a performative.

Practice

(1) If I say to you, "I warn you not to come any closer", do I, by so saying, actually perform the act of warning you not to come any closer? *Yes / No*

(2) Does the utterance "I warn you not to come any closer" describe an act of warning by the speaker? *Yes / No*

(3) Is the utterance "I warn you not to come any closer" a performative utterance? *Yes / No*

(4) If Sam says to Rachel, "I admit that I took 50p from the coffee money" does he, by so saying, actually perform the act of admitting that he took the money? *Yes / No*

(5) And does Sam's utterance describe an act of admission? *Yes / No*

(6) Is "I admit that I took 50p from the coffee money" performative? *Yes / No*

(7) If someone says, "I'm trying to get this box open with a screwdriver", does that utterance itself constitute an act of trying to open a box with a screwdriver? *Yes / No*

(8) Is "I'm trying to get this box open with a screwdriver" performative? *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes (4) Yes (5) Yes (6) Yes (7) No, although it does describe such an act. (8) No

Comment Opposed to performative utterances are constative utterances. These can be defined very simply.

Definition A CONSTATIVE utterance is one which makes an ASSERTION (i.e. it is often the utterance of a declarative sentence) but is NOT performative.

Example "I'm trying to get this box open with a screwdriver" is a constative utterance, because it makes an assertion about a particular state of affairs, but is not performative, i.e. the utterance does not simultaneously describe and perform the same act.

Practice Are the following utterances performative (P) or constative (C)?

(1) "I name this ship Hibernia" *P / C*

(2) "I believe in the dictatorship of the Proletariat" *P / C*

(3) "I admit I was hasty" *P / C*

(4) "I think I was wrong" *P / C*

(5) "I hereby inform you that you are sacked" *P / C*
(6) "I give you supper every night" *P / C*

Feedback (1) P (act of naming) (2) C (only describes belief) (3) P (act of admission) (4) C (only describes mental state) (5) P (act of informing) (6) C (only describes a state of affairs)

Comment You will have noticed that many performative utterances contain the 1st person pronoun "I", followed by a certain type of verb in the present tense. E.g. "I promise . . . ", "I admit . . . ", "I congratulate . . . " etc. These are all verbs which describe speech acts. We classify them as performative verbs.

Definition A PERFORMATIVE VERB is one which, when used in a simple positive present tense sentence, with a 1st person singular subject, can make the utterance of that sentence performative.

Example *Sentence* is a performative verb because, for example, "I sentence you to be hanged by the neck" is a performative utterance.

Punish is not a performative verb because, for example, "I punish you" is not a performative utterance.

Practice Are the following performative verbs, or not?

(1) *apologize* *Yes / No*
(2) *authorize* *Yes / No*
(3) *argue* *Yes / No*
(4) *condemn* *Yes / No*
(5) *squeal* *Yes / No*

Feedback (1) Yes (2) Yes (3) No (4) Yes (5) No

Comment Note that although all of the above verbs describe acts carried out in speech, they are not therefore necessarily performative. Thus although I can argue with you verbally, simply saying "I argue" does not of itself constitute an argument. On the other hand, simply saying "I warn you" is of itself enough to administer a warning.

Naturally enough, there are some borderline cases, in which it is hard to say whether some particular verb is, or is not, performative. Many good examples of performative verbs occur in standardized and stereotyped formulae used in public ceremonies, such as *pronounce* in "I pronounce you man and wife" in a marriage ceremony.

Practice Think of three or more examples of performative verbs used in the formulae of conventionalized public and social occasions.

_____

_____

Feedback *name* (e.g. "I name this ship Titanic"); *baptize*; *object* (e.g. "I object, your Honour"); *declare* (e.g. "I declare this bridge open"); *plead* (e.g. "I plead Not Guilty")

Comment As noted above, performative utterances contain a performative verb, and many have 1st person singular subjects and are in the present tense. But there are exceptions to this pattern.

Practice Some of the following utterances are exceptions to the statement that all performative utterances have 1st person singular subjects. Which utterances are the exceptions? (Indicate your answer by underlining the exceptions.)

(1) "You are hereby forbidden to leave this room"
(2) "All passengers on flight number forty-seven are requested to proceed to gate ten"
(3) "I suggest that you see a psychiatrist as soon as possible"
(4) "This ship is called Titanic"
(5) "We thank you for the compliment you have paid us"

Feedback (1) exception, because performative, but with a 2nd person subject (2) exception, because performative but with 3rd person plural subject (3) not an exception (4) not an exception, because not performative (5) exception, because performative but with 1st person plural subject

Comment Although most performative utterances have 1st person singular subjects, there are exceptions. In fact, the most reliable test to determine whether an utterance is performative is to insert the word *hereby* and see if the modified utterance is acceptable.

Practice Can *hereby* be acceptably inserted in the space indicated in the following utterances?

(1) "I ( ) give notice that I will lock these doors in sixty seconds" *Yes / No*
(2) "Listeners are ( ) reminded that BBC wireless licences expire on April 4th" *Yes / No*
(3) "It ( ) gives me great pleasure to open this building" *Yes / No*
(4) "I ( ) warn you not to talk to my sister again" *Yes / No*
(5) "I ( ) believe in God the Father Almighty, Creator of Heaven and Earth" *Yes / No*

Feedback (1) Yes (2) Yes (3) No (4) Yes (5) No

Comment If a sentence can be accompanied by *hereby* without seeming odd, then the utterance of that sentence (in normal circumstances) constitutes a performative utterance.

Practice Indicate whether the following sentences are odd or not odd.

(1) *I hereby warn you that you will fail* — *Odd / Not odd*
(2) *They hereby warn her that she will fail* — *Odd / Not odd*
(3) *I hereby promised him that I would be at the station at three o'clock* — *Odd / Not odd*
(4) *The management hereby warn customers that mistakes in change cannot be rectified once the customer has left the counter* — *Odd / Not odd*
(5) *Spitting is hereby forbidden* — *Odd / Not odd*
(6) *I hereby sing* — *Odd / Not odd*

Feedback (1) Not odd (2) Odd (3) Odd (4) Not odd (5) Not odd (6) Odd

Summary Words and sentences when uttered are used to do things, to carry out socially significant acts, in addition to merely describing aspects of the world. The notion of a performative illustrates this point in some rather special cases.

In subsequent units, we will analyse in more detail the various characteristics of speech acts. (The original developer of modern theories of speech acts was the Oxford philosopher J.L. Austin.)

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UNIT 22
PERLOCUTIONS AND ILLOCUTIONS

Entry requirements SPEECH ACTS (Unit 21). If you feel you understand this idea, take the entry test below. Otherwise, review Unit 21.

Entry test

(1) Which of the following acts can be performed through the use of language? Underline your choices.
kicking, asserting, warning, promising, running, referring, insulting

(2) Which of the following statements is correct? Circle your choice.
(a) There are no acts which can be performed either linguistically (e.g. with an utterance) or non-linguistically (e.g. with a gesture).
(b) There are no acts which cannot be performed linguistically.
(c) Some acts can be performed either linguistically or non-linguistically.

(3) Can the same sentence be uttered on different occasions to perform different acts? *Yes / No*

(4) Is the sentence *I hereby command you to teach first-year Semantics* performative (P), constative (C), or neither (N)? *P / C / N*

Feedback (1) asserting, warning, promising, referring, insulting (2) (c) (3) Yes (4) P
If you got at least 3 out of 4 correct, continue to the introduction. Otherwise, review Unit 21.

Introduction In Unit 21 we made the point that a part of the meaning of an utterance is what that utterance does. This kind of meaning is essentially different from, and adds a new dimension to, the kind of meaning associated with declarative sentences by semantic theories of sense relations and logic. The view of meaning as acts also leads away from the emphasis placed by theories of sense relations and logic on truth. In this unit we shall begin to explore these consequences of the speech act view of meaning.

Comment The study of sense relations and logic has concentrated almost exclusively on the meaning of only one type of sentence, i.e. declaratives. Actually, attempts have been made recently to extend logic to cover imperatives and interrogatives, but these suggestions have not been generally accepted as identifying the correct way to analyse non-

declaratives. In this unit we will begin to show how the notion of speech acts could provide a link between the senses of declarative and non-declarative sentences.

To start with, imperative and interrogative sentences, when uttered, clearly perform acts, just as declaratives do.

Practice

(1) Could the utterance "Don't come a step nearer!" be an act of warning? *Yes / No*

(2) Could the utterance "Get lost" be an act of dismissing? *Yes / No*

(3) Could the utterance "Why don't you try looking in Woolworths?" be an act of making a suggestion? *Yes / No*

(4) Could the utterance "Do you think I'm an idiot?" be an act of rejecting a suggestion? *Yes / No*

(5) Just as the linguistic act of asserting can be seen as typifying utterances of declarative sentences, what linguistic act typifies interrogative utterances, i.e. what act is typically performed by uttering an interrogative sentence?

---

(6) And, similarly, what act is most typically carried out by an imperative utterance?

Feedback

(1) Yes (2) Yes (3) Yes (4) Yes (5) the act of asking a question
(6) the act of ordering someone to do something

Comment

These answers show that the speech act approach to meaning promises a unified account of the utterance of sentences of all types, declarative, interrogative and imperative. All perform acts of some kind or other. And, furthermore, sentences of each type, when uttered, tend to carry out typical linguistic acts. The pattern is summarized in the chart below. The very names of the sentence types (declarative, interrogative, and

Sentence type	Typical linguistic act performed by uttering a sentence of this type
declarative	asserting
interrogative	asking
imperative	ordering

imperative) contain thinly disguised Latin allusions to the acts of asserting, asking and ordering. So one might think that a straightforward matching of sentence types to acts was all that was needed to account for this aspect of meaning. But a little thought shows that this simple scheme will not work. Language is used in more complicated ways.

Practice

In the following situation, does the act carried out by the utterance seem to be primarily one of asserting, asking or ordering? In each case, note the sentence type, whether declarative, interrogative or imperative. We have done the first one for you.

(1) Lady at ticket office in railway station: "I'd like a day return to Morecambe, please"

Sentence type: declarative *Act*: requesting or ordering

(2) Speaker at a meeting on a hot political issue: "Is it right to condone thuggery?"

Sentence type: _____ *Act*: _____

(3) The Duke of Omnium, to his butler, who sees to his every need: "It's cold in here, Hives"

Sentence type: _____ *Act*: _____

(4) To companion on a country walk, while climbing a fence: "My skirt is caught on the barbed wire"

Sentence type: _____ *Act*: _____

(5) Biology teacher: "Note that the female cell has two X-shaped chromosomes"

Sentence type: _____ *Act*: _____

(6) Mother to child who is eating untidily: "Look at the mess you've made under your chair"

Sentence type: _____ *Act*: _____

Feedback

(2) interrogative; asserting (= "It is not right") (3) declarative; ordering (= "close the window") (4) declarative; requesting or ordering (= "Please help me") (5) imperative; asserting (= "The female cell has two X-shaped chromosomes") (6) imperative; asserting (= "You've made a mess")

Comment

Obviously the simple matching of acts with sentence types has plenty of exceptions, and we need to develop a more subtle theory than that given in the table. So far, we have been rather crude in our labelling of acts, as assertions, warnings, threats, etc. etc. More careful distinctions need to be made between various different types of speech act, in order

to begin to make sense of this area of meaning. We now introduce the technical distinction between perlocutionary act and illocutionary act.

Definition

The PERLOCUTIONARY ACT (or just simply the PERLOCUTION) carried out by a speaker making an utterance is the act of causing a certain effect on the hearer and others.

Example

If I say "There's a hornet in your left ear", it may well cause you to panic, scream and scratch wildly at your ear. Causing these emotions and actions of yours is the perlocution of my utterance, or the perlocutionary act I perform by making that utterance.

Comment

The perlocution of an utterance is the causing of a change to be brought about, perhaps unintentionally, through, or by means of, the utterance (Latin *per* 'through, by means of'). The point of carefully distinguishing the perlocutionary aspect of the speech act from others is that perlocutions can often be accidental, and thus bear a relatively unsystematic relationship to any classification of sentence types.

Practice

Describe at least two possible perlocutionary effects of each of the utterances in the following situations. We have done the first one for you.

(1) Neighbour to recently bereaved widow: "I was so sorry to hear about your loss"

Possible effect: Awareness of her grief floods back into hearer's mind and she begins to weep. Another possible effect: Hearer, expecting the utterance, gives a prepared reply: "Thank you. It was a shock, but I must get used to it."

(2) Lecturer to student: "You'll find the book on Swahili infinitives quite fascinating"

(3) Child to playground supervisor: "Miss, Billy just swore at me. He told me to piss off"

(4) One chess player to another: "I just made a bad move"

(5) Policeman to man in street: "Good evening, Sir. Do you live around here?"

Feedback

(2) The student is amused at the lecturer's enthusiastic naivety *or* the student is annoyed at what he takes to be obvious sarcasm *or* nothing: the student hasn't heard the utterance. (3) The playground supervisor is shocked at Billy's bad language and goes to reprimand him *or* she tells the child to go away and sort out his own problems with Billy. (4) The other player wonders quietly whether his opponent is trying to lull him into a false sense of security or whether he really is now in an advantageous position *or* the other player realizes his opponent has indeed made a mistake, grunts unchivalrously, and captures his opponent's queen. (5) The man says, aggressively: "It's none of your business" and walks on *or* the man says, embarrassed: "Yes, I suppose you're wondering what I'm doing with this brick."

Comment

It is important to remember that the perlocutionary acts involved in examples such as these are not the effects of the original utterances. Rather, the perlocutionary act involved in making an utterance is that part of the total act which causes such effects. We will return to this point later. Meanwhile, we move to the notion of illocutionary act.

Definition

The ILLOCUTIONARY ACT (or simply the ILLOCUTION) carried out by a speaker making an utterance is the act viewed in terms of the utterance's significance within a conventional system of social interaction. Illocutions are acts defined by social conventions, acts such as accosting, accusing, admitting, apologizing, challenging, complaining, condoling, congratulating, declining, deploring, giving permission, giving way, greeting, leavetaking, mocking, naming, offering, praising, promising, proposing marriage, protesting, recommending, surrendering, thanking, toasting.

Example

Saying: "I'm very grateful to you for all you have done for me" performs the illocutionary act of thanking.

Practice

Selecting your answers from the list of illocutions given in the above

definition, say what illocutionary acts are performed by the following utterances, assuming normal circumstances.

(6) "Would you like a cup of coffee?"

offering

---

(7) "After you" (said to someone wishing to go through the same door as the speaker)

giving way

---

(8) "I'm awfully sorry I wasn't at the meeting this morning"

apologizing

---

(9) "You can play outside for half an hour"

giving permission

---

(10) "Good evening"

greeting

---

(11) "Good night"

leavetaking

Feedback

(6) offering (7) giving way (8) apologizing (9) giving permission (10) greeting (and sometimes, but not often, leavetaking) (11) leavetaking (not greeting)

Comment

As a further indication of the notion of illocutionary act, we contrast it with that of perlocutionary act. The perlocution of an utterance is often quite different from its illocution. We can see this using the last two sets of examples again.

Practice

In questions (1)–(5), on pp. 243–4, you were asked to suggest perlocutionary effects for given utterances. Now state the illocution of each of those utterances, selecting from the list given in the above definition, and assuming normal circumstances.

(1) _____ (4) _____

(2) _____ (5) _____

(3) _____

In questions (6)–(11) on this page, you were asked for the illocutions of certain utterances. Now suggest a possible perlocution for each. Use the same general form of words for each answer, i.e. begin with "Causing the hearer to . . . "

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(6) _____

_____

(7) _____

_____

(8) _____

_____

(9) _____

_____

(10) _____

_____

(11) _____

_____

Feedback (1) condoling (2) recommending (3) complaining (4) admitting (5) accosting (6) e.g. causing the hearer to start suddenly, as she had not realized anybody else was in the room (7) e.g. causing the hearer to smile, bow, extend his hand, and say "No, after you" (8) e.g. causing the hearer to lift his eyes heavenwards, and 'tut' disgustedly (9) e.g. causing the hearer to race out of the room, picking up his football on the way (10) e.g. causing the hearer to reply "Good evening" (11) e.g. causing the hearer to smile and wonder why the speaker is being so polite

Comment Illocutionary acts form a kind of social coinage, a complicated currency with specific values, by means of which speakers manipulate, negotiate and interact with other speakers. To continue the metaphor, social encounters involve the exchange of illocutions.

Example

speaker A: "Hello" (greeting)
speaker B: "Hello" (greeting)

speaker A: "You took the last biscuit" (accusation)
speaker B: "No, I didn't" (denial)

Practice Do each of the following pairs of illocutions seem appropriate sequences (Yes) or not (No)?

(1) greeting – greeting *Yes / No*
(2) accusation – denial *Yes / No*
(3) greeting – denial *Yes / No*

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(4) protest – apology *Yes / No*
(5) congratulation – apology *Yes / No*
(6) compliment – leavetaking *Yes / No*

Feedback (1) Yes (2) Yes (3) No (4) Yes (5) No (6) No

Practice Consider again the following example:
Utterance: "Would you like a cup of coffee?"
Illocutionary act: Offering
Perlocutionary act: (e.g.) causing the hearer to think the speaker is more generous than he thought

(1) Is the illocutionary act something the speaker intends to do in making the utterance? *Yes / No*
(2) Is the perlocutionary act something the speaker intends to do in making the utterance? *Yes / No*
(3) Is it evident what illocutionary act has been performed (in this case offering) as soon as the utterance is made? *Yes / No*
(4) Is it evident what perlocutionary act has been performed as soon as the utterance is made? *Yes / No*
(5) Is the illocutionary act performed something that is within the full control of the speaker? *Yes / No*
(6) Is the perlocutionary act performed something that is within the full control of the speaker? *Yes / No*

Feedback (1) Yes (2) sometimes, perhaps, but by no means always (3) Yes (4) No (5) Yes (6) No

Comment Generally speaking, the illocutionary act inherent in an utterance is intended by the speaker, is under his full control, and if it is evident, it is so as the utterance is made, whereas the perlocutionary act performed through an utterance is not always intended by the speaker, is not under his full control, and is usually not evident until after the utterance is made.

It is much more usual to talk of a speaker 'trying' to carry out a perlocutionary act (e.g. trying to amuse, or shock, or annoy someone) than it is to talk of a speaker 'trying' to carry out an illocutionary act (e.g. trying to apologize, or to offer someone something, or to complain about something). In the latter case, but not the former, there is the strong implication that one is being actually prevented from speaking. Because of these differences, it is possible in very many cases to classify acts as either illocutionary or perlocutionary.

Examples The act of addressing someone is illocutionary because it is something

that a speaker can decide for himself to do, and be sure of doing it when he decides to do it. The hearer (the addressee) in a speech situation cannot decide whether to be addressed or not (although he may ignore the fact that he is being addressed, or possibly not realize that he is being addressed).

The act of persuading someone of something, on the other hand, is perlocutionary, because the speaker cannot be sure of persuading the hearer, no matter how hard he tries. The hearer can decide whether to be persuaded or not.

Practice

Using the criteria just outlined, classify the following acts as either illocutionary (I) or perlocutionary (P).

(1)	distracting someone	*I / P*	(4)	hurting someone	*I / P*
(2)	claiming	*I / P*	(5)	predicting something	*I / P*
(3)	denying something	*I / P*	(6)	mocking someone	*I / P*

Feedback

(1) P (2) I (3) I (4) P (5) I (6) I

Comment

The existence of an unclear case, such as contradicting, which seems to have some features of an illocutionary act and some of a perlocutionary act, shows that the actual application of this distinction is somewhat fuzzy, but nevertheless, it is plain that for a large number of acts carried out in, or by, utterances, the distinction between illocution and perlocution is quite clear. The above practice and observations highlight the somewhat accidental and haphazard character of the relationship between sentences when uttered and perlocutionary acts.

Obviously there is more hope of being able to discover neat systematic relationships between speech acts and utterance types (and hence sentence types) if we concentrate on the illocutions of utterances, rather than on their perlocutions. In short, making the careful distinction between illocutionary acts and perlocutionary acts enables us to simplify the problem of relating speech to acts, by excluding (temporarily at least) perlocutionary acts. Accordingly, we concentrate in later units on the illocutions of utterances.

Finally, we introduce two further terms, 'phonic act' and 'propositional act'.

Definition

The PHONIC ACT involved in an utterance is the physical act of making certain vocal sounds.

The PROPOSITIONAL ACT involved in an utterance consists in the mental acts of REFERRING (to certain objects or people in the world) and of PREDICATING (i.e. coupling predicates to referring expressions).

Practice

A parrot says "Fire"

(1) Is a phonic act involved? *Yes / No*
(2) Is a propositional act involved? *Yes / No*
(3) Is an illocutionary act involved? *Yes / No*
(4) Is a perlocutionary act involved? *Yes / No*

Feedback

(1) Yes (2) No, a parrot doesn't understand the meaning of what it says. (3) No (4) It could be, if someone didn't realize it was a parrot speaking, and took the utterance seriously.

Summary

The simple notion of speech act, introduced in Unit 21, has been refined by making the distinction between illocutions and perlocutions. Our attention in subsequent units will be directed exclusively to illocutionary acts, and we shall make some further distinctions between types of illocutions.

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UNIT 23
FELICITY CONDITIONS

Entry requirements

SPEECH ACT (Unit 21) and ILLOCUTION (Unit 22). If you feel you are familiar with the notions explained in the above units, take the entry test below. If not, review the relevant unit.

Entry test

Answer the following questions:

(1) Name three performative verbs.

promise, beg, admit

(2) Complete the following definition:

A performative utterance is one that describes some act and

performs that act.

(3) Note down the sentence type and the main illocutionary act performed in the following utterances.

(a) Man in pet shop: "Is that parrot expensive?"

Sentence type: interrogative *Act*: enquiry

(b) Teacher to class: "I don't want to hear noise at the back of the class"

Sentence type: declarative *Act*: command

(c) Man helping a blind man across a road: "Watch the step"

Sentence type: imperative *Act*: warning

(d) Man in argument: "Do you take me for a fool?"

Sentence type: interrogative *Act*: assertion

Feedback

(1) *promise*, *beg*, *admit*, etc. (2) A performative utterance is one that describes some act and simultaneously performs that act. (3) (a) interrogative; enquiry (b) declarative; command (c) imperative; warning (d) interrogative; assertion
If you have more than one wrong answer you should review Units 21 and 22. Otherwise continue to the introduction.

Introduction

So far, we have outlined a way of looking at speech as action. Utterances can be seen as significant acts on a social level, e.g. accusations,

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confessions, denials, greetings, etc. The question we now pose is: by what system do speakers know when such social moves are appropriate? That is, in what circumstances are illocutions used? A further technical notion, that of felicity condition, needs to be introduced in order to give a plausible answer to this question.

Definition

The FELICITY CONDITIONS of an illocutionary act are conditions that must be fulfilled in the situation in which the act is carried out if the act is to be said to be carried out properly, or felicitously.

Examples

One of the felicity conditions for the illocutionary act of ordering is that the speaker must be superior to, or in authority over, the hearer. Thus, if a servant says to the Queen "Open the window", there is a certain incongruity, or anomalousness, or infelicity in the act (of ordering) carried out, but if the Queen says "Open the window" to the servant, there is no infelicity.

A felicity condition for the illocutionary act of accusing is that the deed or property attributed to the accused is wrong in some way. Thus one can felicitously accuse someone of theft or murder, but normally only infelicitously of, say, being a nice guy, or of helping an old lady to cross the road.

Practice

Given below are illocutionary acts, and for each act four suggested felicity conditions. In each case only two of the felicity conditions are actually correct. Indicate the correct felicity conditions by circling your choices.

(1) promising:
   (a) The speaker must intend to carry out the thing promised.
   (b) The speaker must be inferior in status to the hearer.
   (c) The thing promised must be something that the hearer wants to happen.
   (d) The thing promised must be morally wrong.

(2) apologizing:
   (a) The speaker must be responsible for the thing apologized for.
   (b) The thing apologized for must be (or must have been) unavoidable.
   (c) The thing apologized for must be morally wrong.
   (d) The hearer must not want the thing apologized for to happen (or to have happened).

(3) greeting:
   (a) The speaker and the hearer must be of different sex.
   (b) The speaker and the hearer must not be in the middle of a conversation.
   (c) The speaker must believe the hearer to have recently suffered a loss.

(d) The speaker feels some respect and/or sense of community (however slight) with the hearer.

(4) naming:
   (a) The thing or person named must not already have a recognized name known to the speaker.
   (b) The speaker must be recognized by his community as having authority to name.
   (c) The thing or person named must belong to the speaker.
   (d) The thing or person named must be held in considerable respect by the community.

(5) protesting:
   (a) The speaker and the hearer must have recently been in conflict with each other.
   (b) The speaker must disapprove of the state of affairs protested at.
   (c) The state of affairs protested at must be disapproved of by the community generally.
   (d) The hearer must be held to be responsible (by the speaker) for the state of affairs protested at.

Feedback

(1) (a), (c) (2) (a), (d) (3) (b), (d) (4) (a), (b) (5) (b), (d)
(Some of the analyses given here may be debatable. You may debate them with your tutors and fellow-students.)

Comment

In other units (13 and 14) we have mentioned the notion of truth conditions. Truth conditions are conditions that must be satisfied by the world if an utterance (of a declarative sentence) is true. For example, the utterance "There is a cat on the table" is only true if in the world at the time of the utterance there actually is a table with a cat on it. Correspondingly, felicity conditions are conditions that must be satisfied by the world if an illocutionary act is felicitous (or 'appropriate').

Practice

Label the illocutionary acts in the following situations felicitous or infelicitous applying normal everyday criteria. In each case also name the illocutionary act concerned. We have done the first one for you.

(1)

Thanking. Infelicitous. _____

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(2)

(3)

(4)

(5)

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Feedback

(2) marrying; felicitous (3) reprimanding (telling off); infelicitous
(4) promising; infelicitous (5) dismissing, or giving permission; infelicitous

Comment

These exercises bring out some similarities and differences between truth conditions and felicity conditions. Another obvious difference between them is that felicity conditions are of wider application than truth conditions. Only declarative sentences may be true or false, but all types of sentence, declarative, interrogative, and imperative, can be uttered to carry out illocutionary acts that may be felicitous or infelicitous.

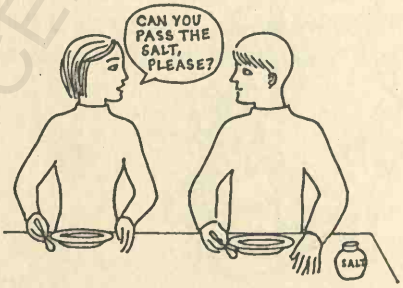
Practice

Name the illocutionary acts carried out in the following examples, and state whether they are, as far as you can see, felicitous or infelicitous. In each case state the sentence type involved.

(1)

(2)

(3)



Feedback (1) imperative; offering; infelicitous (2) imperative; ordering; infelicitous (3) interrogative; requesting; felicitous

Comment A good way of discovering the felicity conditions of an illocutionary act is to imagine a situation in which a speaker carries out such an act, or attempts to, but something in the situation makes the act 'misfire', or not come off appropriately. For example, in question (1) above, the speaker is definitely carrying out an act of offering a cigarette, but there is something odd, or infelicitous about the offer, as the hearer already has the cigarette. This shows that one of the felicity conditions for the act of offering is that the hearer must not already have the thing offered.

Next, we will look at the case of a particular subtype of felicity condition, namely sincerity conditions.

Definition A SINCERITY CONDITION on an illocutionary act is a condition that must be fulfilled if the act is said to be carried out SINCERELY, but failure to meet such a condition does not prevent the carrying out of the act altogether.

Example A sincerity condition on apologizing is that the apologizer believes that the thing apologized for is wrong in some way. Thus if John enters a room at a certain time, believing that to do so is wrong in some way (e.g. impolite, tactless, sacrilegious) and he says "I'm sorry to come in here at this moment", then he has apologized, and apologized sincerely. But if he says the same thing in the same circumstances, except that he does not believe that what he has done is wrong in any way, then he has still apologized, but insincerely.

Practice

(1) If Helen says to me "Congratulations on passing your driving test", has she thereby congratulated me? *Yes / No*

(2) If Helen, in the above scene, believes that I only got through my driving test by bribing the examiner, is her congratulation sincere? *Yes / No*

(3) Is it a sincerity condition on congratulating that the speaker believe the thing on which he congratulates the hearer to be praiseworthy in some way? *Yes / No*

(4) If I say "I bet you can't beat my computer at chess", have I thereby carried out an act of challenging? *Yes / No*

(5) But if I know that my computer has actually been programmed to lose at chess, is my challenge sincere? *Yes / No*

(6) Is it a sincerity condition on challenging that the speaker believe that what he challenges the hearer to do is difficult in some way? *Yes / No*

(7) Is it a sincerity condition on thanking that the speaker approve of the thing for which he thanks the hearer? *Yes / No*

(8) Is it a sincerity condition on criticizing that the speaker approve of the thing he criticizes? *Yes / No*

Feedback (1) Yes (2) No (3) Yes (4) Yes (5) No (6) Yes (7) Yes (8) No

Comment Some of these sincerity conditions were mentioned earlier as exampies of felicity conditions generally, i.e. sincerity conditions are simply a special case of felicity conditions.

We have emphasized the difference between sentence meaning and utterance meaning, but of course there must be a linking relationship between them. The link exists through the capacity of languages to describe anything, including acts (like speech acts) which make use of language itself (i.e. language can be used as its own metalanguage).

Thus we find that almost any illocutionary act has a predicate word describing it. For example, the act of accusing is described by the English predicate *accuse*. The parallel is obvious. If an act is significant in a society (as illocutionary acts are), then it is not surprising that the society should have coined a word to describe it. Just as illocutionary acts can be described with English words and sentences, so can their felicity conditions.

There is an essential circularity that we are involved in when doing semantics. We want to formulate precise statements about utterance meaning, including statements about the felicity conditions on illocutionary acts, and we must do so in English (or some other language), using English words and sentences. But another concern of semantics is to make precise statements about the meanings of English words and sentences. Thus, for instance, formulating sincerity conditions helps us to form a precise picture of how utterance meaning works, but simultaneously it sheds light on the meaning of the word *sincere* itself.

Summary This unit has explored the notion of felicity conditions, including that of sincerity condition. The notion of felicity condition will be made use of in the next unit. We have also mentioned an aspect of the relationship between utterance meaning and sentence meaning, a relationship which we will also explore further in later units.

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UNIT 24
DIRECT AND INDIRECT ILLOCUTIONS

Entry requirements

ILLOCUTIONS (Unit 22) and FELICITY CONDITIONS (Unit 23). If you feel you understand these notions, take the entry test below. Otherwise, review the relevant unit.

Entry test

(1) Consider the utterance, "Excuse me, you're standing on my dress". In normal circumstances, which of the following statements about this utterance is true? Circle your choice.
   (a) The perlocution of the utterance is an excuse.
   (b) One of the illocutions of the utterance is an act of informing.
   (c) The proposition of the utterance is an act of reminding.

(2) Which appears to be the more systematic, the relationship between utterances and their illocutions (I), or the relationship between utterances and their perlocutions (P)? *I / P*

(3) Can an illocution normally be carried out unintentionally? *Yes / No*

Are the following utterances, whose illocutions are requests, felicitous (F) or infelicitous (I) in normal circumstances?

(4) Bus passenger to another passenger, "Would you mind opening the window slightly?" *F / I*

(5) Hospital visitor to patient with arms in plaster, "Pass the grapes, please" *F / I*

(6) Which of the following is a felicity condition on requests?
   (a) that the speaker be able to carry out the action described
   (b) that the hearer be able to carry out the action described
   (c) that the hearer want to carry out the action described

Feedback

(1) (b) (2) I (3) No (4) F (5) I (6) (b)
If you have scored less than 5 out of 6, you should review Units 22 and 23. Otherwise, continue to the introduction below.

Introduction

The main problem we will concentrate on in this unit is that of trying to discover some systematic way of telling from the form of an uttered sentence what illocutionary act is performed in uttering it. There must be some such system, because language users are able to tell with great

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(though not total) reliability from the form of an uttered sentence what illocutionary act is performed.

Practice

According to the conventions of everyday usage could the utterance, in a normal situation, of "Would you like a cup of coffee?" be an act of:

(1) warning?
(2) thanking?
(3) apologizing?
(4) offering?
(5) enquiring?
(6) questioning?

Feedback

(1) No (2) No (3) No (4) Yes (5) Yes (6) Yes

Comment

English speakers generally agree about facts such as these. The interesting question is: HOW do English speakers extract from the specific words used in "Would you like a cup of coffee?", the information that this utterance definitely is an act of offering, enquiring, and asking, and that it is not an act of thanking, warning, or apologizing? We pursue this question below, but one reservation should be mentioned straight away. This is that the facts are not always as clear as in the example just given. We will reinforce this point with some practice.

Practice

Do each of the following situations indicate a clear understanding on the part of both participants of what illocutionary acts are involved?

(1) Factory inspector: "I'll come back and see this machine tomorrow."
Foreman: "Is that a threat or a promise?" *Yes / No*

(2) Amateur astrologer: "I'm trying to cast your horoscope. Let's see, now – you were born under Aquarius."
Sceptic: "Are you asking me or telling me?" *Yes / No*

(3) A: "You deserve a trip to Alaska for what you've done."
B: "You mean as a punishment, or as a reward?" *Yes / No*

Feedback

(1) No (It is not clear to the hearer whether the illocution of the first utterance is a threat or a promise.) (2) No (similarly) (3) No (The first utterance could have the illocution of praising or deprecating.)

Comment

Despite the existence of such unclear cases, in which there may be doubt about what illocutionary act actually is carried out in an utterance, we shall concentrate on the clear cases as far as possible. Note that one utterance may have several illocutions at the same time.

Practice

The utterances in the following examples actually carry out several illocutionary acts simultaneously. Give two illocutions in each case. We have done the first one for you.

(1) "Can I remind everybody that we meet here again at 6 pm?"

Asking, reminding and informing

(2) "Can you pass the salt?"

(3) To a car salesman who has just mentioned a price of £950 for a car: "O.K. I'll take it at that price"

(4) Young man in crowd addressed by the Prime Minister, shouting loudly: "What are you going to do about the three million unemployed?"

(5) Shopgirl, handing over a packet of razor blades and two bars of soap: "That will be 88p, please"

(6) Museum attendant, to visitor: "I'm afraid we're closing now, Sir"

Feedback

(2) asking, requesting (3) accepting, agreeing (4) protesting, asking (5) informing, requesting (6) apologizing, informing, requesting

Comment

Now that we have seen that an utterance can have more than one illocution, it is useful to introduce the distinction between direct and indirect illocutions.

Definitions

The DIRECT ILLOCUTION of an utterance is the illocution most directly indicated by a LITERAL reading of the grammatical form and vocabulary of the sentence uttered.

The INDIRECT ILLOCUTION of an utterance is any further illocution the utterance may have.

Example

The direct illocution of "Can you pass the salt?" is an enquiry about the hearer's ability to pass the salt. The indirect illocution is a request that the hearer pass the salt.

Practice

Give the direct and indirect illocutions of the following utterances. We have done the first one for you.

(1) "Why don't we go to Portugal this summer?"

Direct illocution: Asking why speaker and hearer do not (or will not) go to Portugal

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Indirect illocution: Suggesting that the speaker and the hearer go to Portugal

(2) "Let me say immediately that I endorse the chairman's ruling"

Direct illocution: _____

Indirect illocution: _____

(3) "I believe you may have been looking for me"

Direct illocution: _____

Indirect illocution: _____

(4) "I must ask you to leave"

Direct illocution: _____

Indirect illocution: _____

(5) "Don't you think you ought to phone your mother?"

Direct illocution: _____

Indirect illocution: _____

Feedback

(2) Direct: Ordering hearer to permit speaker to say . . . ; Indirect: Endorsing chairman's ruling (3) Direct: Asserting that speaker believes hearer may have been looking for speaker; Indirect: Asking whether hearer has been looking for speaker (4) Direct: Asserting that speaker is obliged to ask hearer to leave; Indirect: Asking hearer to leave (5) Direct: Asking whether hearer thinks he ought to phone his mother; Indirect: Suggesting that hearer should phone his mother

Comment

The difference between direct and indirect illocutions is seen through the fact that a pedantic or deliberately unhelpful reply can be given to an utterance which has both kinds of illocutions. For example, in reply to "I must ask you to leave" one might say, thwarting the intentions of the first speaker: "Must you?"

Practice

Suggest pedantic, unhelpful, but literally correct, replies to the utterances in (2), (3), and (5) above, alongside more natural helpful replies.

(2) Unhelpful: _____

Helpful: _____

(3) Unhelpful: _____

Helpful: _____

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(5) Unhelpful: _____

Helpful: _____

Feedback

(2) Unhelpful: "No. You may not say that"; Helpful: "Thank you for your endorsement" (3) Unhelpful: "Do you?"; Helpful: "Yes. I have been" (5) Unhelpful: "Yes. I think I ought to"; Helpful: "Yes. I'll do it straight away"

Comment

The notion of speakers being helpful in conversations is important and will be developed in Unit 26. Returning now to our main theme, the search for a correct statement of the systematic relationship between the form of an uttered sentence and the illocution carried out in uttering it, it is clear that for direct illocutions the relationship is quite straightforward. This follows from our definition of direct illocution. (The straightforward facts can be summarized as in the table given on p. 241.) The immediate task now facing us is to try to find some systematic way of relating the indirect illocutions of utterances to the direct illocutions. Put simply, the question facing us is this: By what rules can a language user work out the indirect illocution of an utterance from its direct illocution? For example, if you ask me if I can pass the salt, how do I know that you are requesting me to pass the salt rather than enquiring about my physical ability to pass it?

The notion of felicity condition, dealt with in the previous unit, turns out to be crucial in answering this question.

Practice

(1) Given below are four suggested felicity conditions for the act of enquiring (or asking a question). Only two of them are actually correct. Which two? Circle your choice.

(a) The hearer must believe that the speaker knows the answer to the question.

(b) The hearer must not know the answer to the question.

(c) The speaker must believe that the hearer knows the answer to the question.

(d) The speaker must not know the answer to the question.

(2) In normal everyday circumstances, is it reasonable to assume that almost anyone one speaks to will be physically capable of such a trivial act as picking up a salt-cellar and passing it? *Yes / No*

(3) Given your answers to questions (1) and (2), if at a normal everyday lunch table I say to you, "Can you pass the salt?" would it be reasonable to judge my utterance infelicitous as an act of enquiring? *Yes / No*

(4) Is it one of the felicity conditions of the act of request-

ing that the speaker must believe that the hearer is physically able to do the thing that he (the hearer) is requested to do? *Yes / No*

(5) The direct way of requesting the salt is to say "Please pass the salt". "Can you pass the salt?" is an indirect way of requesting it. Give three other utterances whose indirect illocution is a request for the salt.

Feedback (1) (c), (d) (2) Yes (3) Yes (4) Yes (5) "Would you mind passing the salt", "I'd be grateful if you would pass the salt", "Can I trouble you for the salt?"

Comment The question "Can you pass the salt?" overtly draws attention to one of the felicity conditions of the act of requesting. It is as if the speaker goes about getting the salt passed to him by carefully ensuring that the necessary preconditions for having his request granted are fulfilled. (Of course the hearer will then usually cut the proceedings short by actually passing the salt.) From this example we can state the following approximate rule about direct and indirect illocutions.

Rule Where the direct illocution of an utterance is deliberately infelicitous, the indirect illocution is an act to which the hearer's attention is drawn by mentioning one of its felicity conditions.

Comment This rule is merely a suggestive beginning. It is by no means the whole story. For the rest of this unit, we will investigate in greater detail the possible methods by which speakers recognize the indirect illocutions of utterances. For this purpose, it has been found useful to classify all illocutionary acts into different categories, depending on the type of interaction between speaker and hearer that they bring about. Two classes of illocutionary acts that we shall mention are directives and commissives.

Definition A DIRECTIVE act is any illocutionary act which essentially involves the speaker trying to get the hearer to behave in some required way.

Example Ordering and suggesting are directive acts. Apologizing and promising are not.

Definition A COMMISSIVE act is any illocutionary act which essentially involves the speaker committing himself to behave in some required way.

Example Promising and swearing (in one sense) are commissive acts. Ordering and thanking are not.

Comment There are other classes of illocution which we do not mention here. Thus thanking and apologizing, for example, do not belong to either of the groups that we have mentioned.

Practice Say whether the following acts are directive (D), commissive (C), or neither (N).

(1)	volunteering	*D / C / N*	(5)	requesting	*D / C / N*
(2)	advising	*D / C / N*	(6)	congratulating	*D / C / N*
(3)	forbidding	*D / C / N*	(7)	insulting	*D / C / N*
(4)	accepting	*D / C / N*	(8)	undertaking	*D / C / N*

Feedback (1) C (2) D (3) D (4) C (5) D (6) N (7) N (8) C

Comment Do not confuse the terms 'direct' and 'directive', which mean quite different kinds of things. The term 'direct' denotes how an illocution is carried out, i.e. whether directly or indirectly. The term 'directive' denotes the kind of act carried out, i.e. getting (directing) someone to do something. Thus there can be direct directives (e.g. "Pass the salt") and indirect directives (e.g. "Can you pass the salt?"). Naturally there can also be both direct and indirect commissives.

Practice Locate the following utterances (using their numbers) in the appropriate box on the following diagram.

	Directive	Commissive
Direct		
Indirect		

(1) "Can I help you?" (offering)
(2) "I could do with a drink"
(3) "Stop"
(4) "I promise to be there promptly"
(5) "Go away"
(6) "I would appreciate it if you went away"
(7) "If you need me at any time, just call"

Feedback

3, 5	4
2, 6	1, 7

Practice

(1) Think of five or more examples of directive illocutionary acts.
(2) Think of three or more examples of commissive illocutionary acts.

Feedback

(1) admonishing, appealing, begging, bidding (in an old-fashioned sense of *bid*), commanding, counselling, demanding, directing, enjoining, exhorting, imploring, insisting, instructing, inviting, pleading, urging, etc. (2) binding oneself, committing oneself, giving one's word, guaranteeing, offering, pledging, vowing

Comment

Getting other people to do things and undertaking to do things oneself are two of the most important activities in maintaining the social fabric of our everyday lives. Society as we know it could not exist without the availability of a range of directive and commissive acts.

Asserting and questioning certain of the felicity conditions of a directive are (more or less polite and more or less reliable) ways of carrying out an indirect directive. We will look at the effects of asserting and questioning the general felicity condition on directives which concerns the hearer's ability to carry out the required action.

Practice

(1) Could the utterance "You can shut up" actually be a command to the hearer to shut up? *Yes / No*
(2) Could the utterance "You can make me a cup of coffee while we're waiting for John" be a request? *Yes / No*
(3) Could the utterance "You can try wrapping it in greaseproof paper" be a suggestion? *Yes / No*
(4) Could "Can you shut up?" be a command? *Yes / No*
(5) Could "Can you make me a cup of coffee while we're waiting for John?" be a request? *Yes / No*
(6) Could "Can you try wrapping it in greaseproof paper?" be a suggestion? *Yes / No*
(7) Do these examples tend to show that asserting or questioning the hearer's ability to carry out an action are ways of achieving an (indirect) directive? *Yes / No*

Feedback

(1) Yes (2) Yes (3) Yes (4) Yes (5) Yes (6) Yes (7) Yes

Practice

Imagine that you are the first person mentioned in each of the situations below, and compose (a) an assertion of the hearer's ability to carry out the desired action and (b) an enquiry about the hearer's ability to carry out the desired action, each having an indirectly directive illocution. We have done the first one for you.

(1) Businessman wanting his secretary to tell callers he is out:

(a) "You can tell callers I'm out" _____

(b) "Can you tell callers I'm out?" _____

(2) Father who wants son to turn down his record player:

(a) _____

(b) _____

(3) Customer who wants a car salesman to show him a convertible:

(a) _____

(b) _____

(4) Wife who wants husband to unscrew a stiff lid on a jam jar:

(a) _____

(b) _____

Feedback

(2) (a) "You can turn that record player down" (b) "Can you turn that record player down?" (3) (a) "You can show me a convertible" (b) "Can you show me a convertible?" (4) (a) "You can get this lid off for me" (b) "Can you get this lid off for me?"

Comment

It must be said that there is something rather odd (perhaps excessively indirect) about the assertions (though not about the questions) in these cases. We will not try to analyse this difficulty.

So far we have concentrated on indirect directives. We will now look briefly at indirect commissives, seeing how they also can be achieved by various kinds of assertions and questions.

Practice

(1) Can a monolingual English speaker felicitously volunteer to translate a Welsh TV programme? *Yes / No*

(2) Can a non-swimmer felicitously guarantee that he will swim to the rescue of any bather in difficulties at the beach? *Yes / No*

(3) In the case of directives an important felicity condition concerns the ability of the hearer to carry out the action concerned. In the case of commissives, is there a general felicity condition on the ability of the speaker to perform the action he commits himself to? *Yes / No*

(4) Write down an utterance asserting the speaker's ability to buy the hearer a packet of cigarettes.

_____

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(5) Write down an utterance questioning the speaker's ability to buy the hearer a packet of cigarettes.

---

(6) Could your answer to (4) be an offer? *Yes / No*
(7) Could it be a promise? *Yes / No*
(8) Could it be an act of volunteering? *Yes / No*
(9) Could your answer to (5) be an offer? *Yes / No*
(10) Could it be a promise? *Yes / No*
(11) Could it be an act of volunteering? *Yes / No*

Feedback

(1) No (2) No (3) Yes (4) "I can buy you a packet of cigarettes" (5) "Can I buy you a packet of cigarettes?" (6) Yes (7) No (8) Possibly – the answer is unclear. (9) Yes (10) No (11) Again the answer is unclear.

Comment

Asserting or questioning the speaker's ability to perform some action can give rise to a commissive illocution. But only some commissive illocutions (e.g. offers) can be conveyed in this indirect way. Promises, for instance, apparently cannot be so made. Presumably promises, being more solemn and binding than offers, require a more deliberate and explicit means of expression. Acts of volunteering seem to fall between offers and promises in the degree of directness they require.

We will, lastly, examine a few more examples of asserting and questioning the speaker's ability to perform some action, to check that this method of carrying out indirect commissives is general.

Practice

(1) Give an utterance asserting the speaker's ability to lend the hearer £5.

---

(2) Give an utterance questioning the speaker's ability to lend the hearer £5.

---

(3) Give an utterance asserting the speaker's ability to work harder.

---

(4) Give an utterance questioning the speaker's ability to work harder.

---

(5) Could your answer to (1) have a commissive illocution of some kind (e.g. offer, vow, etc.)? *Yes / No*
(6) Could your answer to (2) have a commissive illocution of some kind? *Yes / No*
(7) Could your answer to (3) have a commissive illocution of some kind? *Yes / No*

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(8) Could your answer to (4) have a commissive illocution of some kind? *Yes / No*

Feedback

(1) "I can lend you £5" (2) "Can I lend you £5?" (3) "I can work harder" (4) "Can I work harder?" (5) Yes, some commissive illocutions, but not all (e.g. an offer but not a promise). (6) Yes, as for (5) (7) Yes, as for (5) (8) In this case, it's not clear whether a commissive act really can be carried out with this utterance.

Summary

In this unit we have introduced the distinction between direct and indirect illocutions, and have begun to explore the methods by which speakers and hearers can identify the indirect illocutions of utterances. We introduced two major types of illocution, namely directives and commissives, and saw how they can be carried out by asserting or questioning certain of their felicity conditions. Several of these concepts will be revisited in the next unit.

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UNIT 25
PROPOSITIONS AND ILLOCUTIONS

Entry requirements

DIRECT and INDIRECT ILLOCUTIONS (Unit 24). If you feel you understand these notions, take the entry test below. If not, review Unit 24.

Entry test

(1) Briefly define what is meant by a directive act.

A directive act is any illocutionary act which _____

_____

_____

(2) Give an example of a directive act.

_____

(3) Briefly define what is meant by a commissive act.

A commissive act is any illocutionary act which _____

_____

_____

(4) Give an example of a commissive act.

_____

(5) Is the sentence *I promise to fail you if you do not hand in your essay on time* literally used to promise? (Assume normal circumstances.) *Yes / No*

Feedback

(1) A directive act is any illocutionary act which essentially involves the speaker trying to get the hearer to behave in some required way. (2) ordering, suggesting, requesting, etc. (3) A commissive act is any illocutionary act which essentially involves the speaker committing himself to behave in some required way. (4) promising, undertaking, accepting, etc. (5) No, a warning or threat
If you have scored less than 4 correct out of 5, review Unit 24. Otherwise, continue to the introduction below.

Introduction

In this unit we will try to draw out some of the relationships between two large areas of meaning that we have mentioned so far in this book,

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namely sentence meaning and utterance meaning. The notion of proposition, and the closely related concepts of predication and reference, are crucial for sentence meaning. The notion of illocution is crucial for utterance meaning. The two kinds of meaning are different, although they obviously interact in communication.

Definition

SENTENCE MEANING is what a sentence means, regardless of the context and situation in which it may be used.

UTTERANCE MEANING is what a speaker means when he makes an utterance in a particular situation.

Practice

Each of the following is a statement from an everyday context in which the words *meaning* or *means* or *mean* or *meant* is used. Say whether the statement is about sentence meaning (S) or about utterance meaning (U).

(1) A statement by a tourist guide: The inscription above this door, translated into English, means *Those who enter here will live forever.* *S / U*

(2) What did you mean by telling me you'd think twice about lending money to Gary? *S / U*

(3) When George says that his gun is loaded he means it as a threat. *S / U*

(4) I think I understand the literal meaning of what you're saying, but I can't see why you should be saying it to me. *S / U*

(5) Fred is very understanding; he knows what I mean even though I don't use the right words to say it. *S / U*

(6) *No head injury is too trivial to ignore* actually, and surprisingly, means the opposite of what you first think. *S / U*

Feedback

(1) S (2) U (3) U (4) S (5) U (6) S

Comment

The gap between sentence meaning and utterance meaning is least noticeable when speakers are being direct (i.e. not being ironic, or diplomatic, or polite). Politeness is one of the main motivations for using an indirect illocution in preference to a direct one (Unit 24). In the previous unit we saw how a speaker could carry out an indirect illocution by (directly) asserting or questioning certain of its felicity conditions. Now we will go through an exactly parallel exercise, illuminating one aspect of the relationship between propositions and illocutions.

Definition (partial)

The PROPOSITIONAL CONTENT of a directive illocution can be expressed by a declarative sentence describing the action that the speaker requires of the hearer. (This definition is partial because it only

applies to directives. It does not apply to commissives, for instance, or other types of illocution.)

Practice

Express the propositional content of each of the following directives with a declarative sentence.

(1) "I would like you to feed my cat while I'm on holiday"

You will _____

(2) "Forceps!" (uttered by a surgeon during an operation)

_____

(3) "Relax!"

_____

(4) "Don't give up!"

_____

(5) In each of the above cases, would uttering the declarative sentence you have given actually carry out (either more or less directly) the same directive illocution as the original utterance? *Yes / No*

(6) In general, does it seem that uttering a declarative sentence describing an action required of the hearer actually carries out a directive illocution? *Yes / No*

(7) Is it polite (P) or rather impolite (I) to issue a directive with an utterance beginning "You will . . . "? *P / I*

Feedback

(1) You will feed my cat while I'm on holiday (2) You will pass me the forceps (3) You will relax (4) You will not give up (5) Yes (6) Yes (7) I

Comment

One way of carrying out an indirect directive is to (directly) assert that the hearer will carry out the action required, i.e. to assert the propositional content of the directive. But this method of getting people to do things is hardly less blunt or more polite than simply issuing a direct directive. We look now at a method that is (in some instances, at least) more polite.

Practice

(1) Give an interrogative sentence corresponding to sentence (1) in the feedback above.

_____

(2) Would uttering this sentence normally be a more, or a less polite way of carrying out the illocution involved? *More / less*

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(3) Give an interrogative sentence corresponding to sentence (3) in the feedback above.

---

(4) Would uttering this sentence normally be a more, or a less polite way of carrying out the illocution involved? *More / less*

(5) Give an interrogative sentence corresponding to sentence (4) in the feedback above.

---

(6) Would uttering this sentence actually carry out the same directive illocutionary act as uttering the corresponding declarative sentence? *Yes / No*

Feedback

(1) Will you feed my cat while I'm on holiday? (2) More (3) Will you relax? (4) Perhaps slightly more polite, but only just (5) Won't you give up? or Will you not give up? (6) No. Uttering the declarative sentence has the illocution of a command (or a prediction that the hearer will not give up), whereas uttering either of the corresponding interrogatives has the illocution of a suggestion actually urging the hearer to give up.

Comment

Thus another way of carrying out an indirect directive is to question the propositional content of the illocution. This method actually results in a more polite utterance than simply asserting the propositional content. But, as we have seen in the last two examples (*Will you relax?* and *Won't you give up?*), this method is not completely general. Sometimes uttering the interrogative is not more polite than uttering the corresponding declarative. And sometimes the interrogative form gives rise to a quite different illocution (as in the last example). These exceptions probably have something to do with the special nature of such items as *relax*, *give up*, and the effects of negation. We will not delve more deeply into such complications, but will turn to the case of indirect commissives.

Practice

(1) In the case of directives, the actor who is to carry out the required action is the hearer of the utterance. Who is the actor to carry out the action concerned in the case of commissive illocutions?

---

(2) Could the propositional content of an offer to give the hearer a piece of gum be expressed with the sentence *I will give you a piece of gum*? *Yes / No*

(3) In general, can the propositional content of any commissive illocution be expressed with a sentence of the form *I will . . .* ? *Yes / No*

Feedback (1) the speaker (2) Yes (3) Yes

Definition (partial) The PROPOSITIONAL CONTENT of a COMMISSIVE ILLOCUTION can be expressed by a declarative sentence describing the action which the speaker undertakes to perform.

Comment Now we will see whether asserting and questioning the propositional content of a commissive actually (indirectly) carries out that commissive, parallel to the case of directives.

Practice (1) In each of the following cases, give an assertion of the propositional content of the commissive illocution concerned. We have done the first one for you.

(a) Father promising to buy his son a rubber dinghy when he can swim:

"I will buy you a rubber dinghy when you can swim"

(b) Dinner guest, offering to help wash the dinner dishes:

(c) Soldier volunteering to cover his section's retreat:

(2) For each of the above cases (a)–(c), turn the assertion you gave as answer into a question.

(a)

(b)

(c)

(3) Could the utterances (assertions) given as answers to (1) (a)–(c) actually be commissive speech acts (i.e. acts of promising, offering, and volunteering?) *Yes / No*

(4) Could the utterances (questions) that you gave as answers to (2) (a)–(c) actually be commissive speech acts? *Yes / No*

Feedback (1) (b) "I'll help wash the dishes" (c) "I'll cover the section's retreat" (2) (a) "Will I buy you a rubber dinghy when you can swim?" (b) "Will I help wash the dishes?" (c) "Will I cover the section's retreat?" (3) Yes, in all three cases (4) No, in all cases

Comment Commissives are like directives in that they can be indirectly carried out by asserting their propositional content, but they differ from directives in that they cannot generally be carried out by questioning their prop-

ositional content. (Actually there are several dialectal complications involving *shall* and *will* which we will not pursue here.) The situation can be summarized as in the table below. Considerations of politeness are among the main reasons for speakers preferring to get their message across by means of indirect, rather than direct, illocutions.

	Directives	Commissives
ASSERTION of propositional content	relatively impolite	moderately polite
QUESTIONING of propositional content	relatively polite	moderately polite but not appropriate in all cases

We leave the topic of politeness now and look at other aspects of the relationship between speech acts and the propositions they involve. The fact that one can talk about the propositional content of any speech act should not be taken to indicate that propositions necessarily 'precede' or 'underlie' speech acts. One can conceive of a speech act being committed without any thought of its propositional content passing through the mind of the speaker. The relationship between propositions and illocutions is simply a special case of the age-old, and very thorny, question of the relationship between thought and action. There is no simple statement of this relationship. In rational behaviour, thought precedes and shapes action, but, as we all know, thoughtless actions occur and can be significant. Even thoughtless actions can be described, after the event, with declarative sentences, i.e. in terms of propositions. With these reservations in mind, we will continue to examine the relationship between sentences and utterances, concentrating on reference and predication.

Practice

If I say to you: "Will you turn off the kitchen light?"

(1) What is the direct illocution of the utterance (assertion, question or command)?

---

(2) What is the indirect illocution of the utterance (e.g. apology, promise, . . .)? (Assume normal circumstances.)

---

(3) Does the utterance use any referring expressions? *Yes / No*
(4) If there are any referring expressions used, list them.

---

(5) In this utterance, is any predicate used to express a connection between the things or persons referred to? *Yes / No*
(6) What is this predicate?

---

(7) In making this utterance, would I normally be carrying out one or more acts of reference? *Yes / No*
(8) In making this utterance, would I be carrying out an act of predicating some connection between the objects or persons referred to? *Yes / No*
(9) In this instance, does the predication apply to a past, present or future connection between the objects or persons referred to? *Past / Present / Future*

Feedback

(1) question (2) request (3) Yes (4) *you* and *the kitchen light* (5) Yes (6) The verb *turn off* (7) Yes, two separate acts of referring (8) Yes, predicating a relation of turning off between you and the kitchen light (9) a future connection

Comment

We see in the above example that even though an utterance is used primarily to do something, i.e. to perform a significant social act such as requesting, the notions of reference and predicate are crucially involved. This is the case in most instances; propositional meaning and interpersonal meaning are closely interwoven. We show below that in some cases, however, the principal participants in illocutionary acts are not explicitly referred to, and that in a tiny minority of cases, an illocutionary act can even be carried out without any obvious use of reference and predication at all. The speaker and the hearer are the main parties involved in illocutionary acts. But note that a specific utterance may or may not explicitly refer to the speaker or the hearer.

Practice

For each of the following utterances, (a) name the most likely illocutionary act being carried out, (b) say whether the speaker is explicitly referred to and (c) say whether the hearer is explicitly referred to.

(1) "I am most grateful to you"

(a) _____ (b) *Yes / No* (c) *Yes / No*

(2) "Thank you very much"

(a) _____ (b) *Yes / No* (c) *Yes / No*

(3) "Thanks a lot"

(a) _____ (b) *Yes / No* (c) *Yes / No*

(4) "Go away"

(a) _____ (b) *Yes / No* (c) *Yes / No*

(5) "Please will you pass the sugar"

(a) _____ (b) *Yes / No* (c) *Yes / No*

(6) "I hereby undertake to pay all my debts"

(a) _____ (b) *Yes / No* (c) *Yes / No*

Feedback

(1) (a) thanking (b) Yes (c) Yes (2) (a) thanking (b) No (c) Yes
(3) (a) thanking (b) No (c) No (4) (a) ordering (or commanding) (b) No (c) No
(5) (a) requesting (b) No (c) Yes (6) (a) promising (b) Yes (c) No

Comment

We see that for an illocutionary act to be carried out, there is no need for either the speaker or the hearer to be referred to (although, in general, reference to the speaker or hearer makes the illocution of an utterance more explicit, and hence clearer). We will now look to see whether the linguistic device of predication is also in some cases dispensable. Can an illocutionary act be carried out without even the use of predication?

Practice

(1) Would it seem reasonable to say that *I thank you* has as its meaning a proposition, involving two referring expressions and a (two-place) predicate *thank*? *Yes / No*

(2) What illocutionary act is normally carried out with the utterance "Hello"?

---

(3) Is *Hello* a declarative sentence? *Yes / No*

(4) Would it seem reasonable to call *hello* a predicate? *Yes / No*

(5) What is the negative of *I thank you*?

---

(6) Is there a negative of *Hello*? *Yes / No*

(7) Would it seem reasonable to analyse the meaning of *Hello* as a proposition? *Yes / No*

Feedback

(1) Yes (2) greeting (3) No (4) No (5) *I do not thank you* (6) No (7) No

Practice

(1) What illocutionary act is normally carried out in uttering "Hey!" _____

(2) Would it be reasonable to analyse the meaning of *Hey!* as a proposition, involving referring expressions and a predicate? *Yes / No*

(3) What illocutionary act is normally carried out in uttering "Goodbye"? _____

(4) Would it be reasonable to analyse the meaning of *Goodbye* as a proposition, involving referring expressions and a predicate? *Yes / No*

Feedback

(1) calling (2) No (3) leavetaking (4) No

Comment

Expressions like *Hello*, *Goodbye* and *Hey!* belong to a tiny set that seem to have purely non-propositional meaning. Although of course it is possible to describe their effects with declarative sentences such as *I greet you* and *I take my leave of you*, this is not an argument that *Hello*, *Goodbye* and *Hey!* themselves have propositions as their meanings, or that they contain referring expressions or predicates. Such expressions are for this reason (verbal) gestures, parallel in essential ways to non-verbal gestures such as waves, nods and handshakes. Rather than classing these expressions under categories of meaning such as predicate or name, we will categorize them simply as primary illocution indicators.

Practice

Given below are some further utterances which could also be regarded as using primary illocution indicators. For each one, state the illocutionary act(s) normally indicated by it.

(1) "Bravo!" _____

(2) "Please" _____

(3) "Hi" _____

(4) "Pardon?" _____

(5) "Hooray" _____

(6) "Eh?" _____

Feedback

(1) congratulating (or expressing admiration) (2) requesting (or entreating) (3) greeting (4) requesting repetition of the hearer's previous utterance (5) expressing (exuberant) approval, congratulating (6) querying (or asking or enquiring)

Comment

Clearly, one-word primary illocution indicators such as these are a rather marginal part of language. Note that most of those given cannot be integrated into sentences, but can only be used on their own. An exception is *please*, which can occur in the middle of a sentence, as in *Will library users please return books to the shelves?* The use of *please* in an utterance makes it unambiguously a request. The use of *please* to indicate a particular illocution is highly conventionalized. No other English word can be so straightforwardly associated with one particular illocution, while at the same time being able to appear in the middle of sentences, as *please* can.

Summary

The study of speech acts adds a dimension to the study of meaning, in particular the interpersonal dimension. It gives us a way of describing how speakers use sentences in actual utterances to interact with other speakers in social situations, exchanging such socially significant illocutions as promises, requests, greetings, warnings, etc. But human communication is not purely interpersonal; people communicate about the world they live in, using reference and predication. In these units we hope to have given some idea of the complex ways in which all these semantic notions are related.

BCUIASICENTRAL UNIVERSITY

UNIT 26
CONVERSATIONAL IMPLICATURE

Entry requirements

ENTAILMENT (Unit 10). If you feel you understand this notion, take the entry test below. Otherwise, review Unit 10.

Entry test

Of the following pairs of sentences, say whether the one in column A entails the one in column B. (For brevity here, as elsewhere, we speak of entailment between sentences, rather than, more strictly, between the propositions underlying sentences.)

	A	B	
(1)	*John is a bachelor*	*John is a man*	*Yes / No*
(2)	*Eliza plays the fiddle*	*Someone plays a musical instrument*	*Yes / No*
(3)	*I've done my homework*	*I haven't brushed my teeth*	*Yes / No*
(4)	*Some of the students came to my party*	*Not all of the students came to my party*	*Yes / No*
(5)	*Mary owns three canaries*	*Mary owns a canary*	*Yes / No*
(6)	*John picked a tulip*	*John didn't pick a rose*	*Yes / No*

Feedback

(1) Yes (2) Yes (3) No (4) No (5) Yes (6) No
If you have scored less than 5 correct out of 6, review Unit 10. Otherwise, continue to the introduction below.

Introduction

In this unit we will explain the notion of conversational implicature. Implicature (as we will call it for short) is a concept of utterance meaning as opposed to sentence meaning, but is parallel in many ways to the sense relation (i.e. sentence meaning concept) of entailment (Unit 10). Furthermore, implicature is related to the method by which speakers work out the indirect illocutions of utterances (Unit 24). We will do a little reviewing of these areas and then get across the idea of implicature.

Comment

As a first step we need to draw out clearly the notion of entailment. The point to get across here is that entailment is based firmly on the notion of truth.

Definition

If when a proposition A is TRUE, a proposition B must therefore also be TRUE, then proposition A ENTAILS proposition B. (We extend this

definition in a natural way to involve the SENTENCES expressed by two such propositions, A and B.)

Practice

Imagine that there are, say, six students who might or might not have come to my party. That is, we are concerned with a little world containing six students. Imagine their names are Philip, Ruth, Margaret, Louise, Andrew and Jan.

(1) Does the expression *some of the students* specify any particular number of students, e.g. 4 or 5 or 6? *Yes / No*

(2) Is the sentence *Some, in fact all, of the students came to the party* a contradiction? *Yes / No*

(3) If *some of the students* is used as a referring expression, referring to just the group Philip, Ruth and Margaret, does the sentence *Some of the students came to the party* say anything about Louise, Andrew and Jan? *Yes / No*

(4) If the sentence *Some of the students came to the party* is true, where the subject phrase of the sentence refers to some particular group of students, can we logically conclude anything about the group of students not referred to? *Yes / No*

(5) So if *Some of the students came to the party* is true, is it conceivable that the other unreferred-to students also came to the party? *Yes / No*

(6) If *Some of the students came to the party* is true, could it conceivably be the case that in fact ALL of the students came to the party? *Yes / No*

(7) Does *Some of the students came to the party* entail *Not all of the students came to the party*? *Yes / No*

Feedback (1) No (2) No (3) No (4) No (5) Yes (6) Yes (7) No

Comment We have taken you through this example deliberately to tie down the strict use of the term 'entailment' that we insist on. Perhaps you felt some discomfort at our conclusion, feeling that our notion of entailment is drawn too narrowly or too strictly, and at odds with everyday conversation. The point we wish to make is that the entailment relationship between sentences is different from the other, more general notion of inference.

Definition An INFERENCE is any conclusion that one is reasonably entitled to draw from a sentence or utterance.

Comment All entailments are inferences, but not all inferences are entailments.

Implicature, which we are about to introduce, is another kind of inference, distinct from entailment.

Practice

(1) If I say "Katie's father didn't give her any supper", would it be reasonable for you to conclude that Katie got no supper? *Yes / No*

(2) If a mother asks her son whether he has done his homework and brushed his teeth, and he replies "I've done my homework" would it be reasonable for his mother to conclude that he hadn't brushed his teeth? *Yes / No*

(3) Does *I've done my homework* entail *I haven't brushed my teeth*? *Yes / No*

(4) If you ask me whether many students came to the party and I say "Some of them came" would it be reasonable for you to infer that not all of the students came to the party? *Yes / No*

(5) In these circumstances is the proposition that not all of the students came to the party a reasonable inference from my utterance? *Yes / No*

(6) Does *Some of the students came to the party* entail *Not all of the students came to the party*? *Yes / No*

Feedback

(1) Only if you have some specific knowledge that no-one other than Katie's father gave her her supper. (2) Yes, in a normal household (3) No (4) Yes (5) Yes (6) No (as dealt with before)

Comment

We have just seen some cases of reasonable inference which are not cases of entailment. These were examples of (conversational) implicature. Note that these examples involved conclusions drawn from utterances on particular occasions and not from isolated sentences. Thus implicature is a matter of utterance meaning, and not of sentence meaning. Implicature is not a form of inference that can be predicted solely from a knowledge of the system of sense relations between sentences. In this respect the problem of implicature resembles the problem (dealt with in Unit 24) of how hearers arrive at the indirect illocutions of utterances. How does a hearer make reasonable inferences from an utterance when the actual sentence uttered does not in fact entail some of the inferences he makes? To start to answer this question, we explore some aspects of everyday conversation.

Practice

In normal conversation, does a helpful speaker try to:

(1) Give relatively unspecific, even vacuous, answers to questions? *Yes / No*

(2) Give information that the hearer already knows? *Yes / No*

(3) Give information that is not relevant to the topic of conversation? *Yes / No*
(4) Give information in a way that is easy to understand? *Yes / No*
(5) Avoid ambiguity, or potentially misleading statements? *Yes / No*

Feedback (1) No (2) No (3) No (4) Yes (5) Yes

Comment The answers reflect what has been called the co-operative principle, the overriding social rule which speakers generally try to follow in conversation. The co-operative principle can be stated simply as 'be as helpful to your hearer as you can'. The fact that speakers are assumed to follow this principle is used by hearers in making inferences from the utterances they hear, as we shall now see in detail.

Practice In the following dialogues, say whether the second speaker is making an utterance that is fully co-operative (C) or one that is misleading (M) or unhelpful in some way (U).

(1) Policeman at the front door: "Is your father or your mother at home?"
Small boy (who knows that his father is at home): "Either my mother's gone out shopping or she hasn't" *C / M / U*
(2) Traffic warden to motorist parked on double yellow line: "Is this your car, sir?"
Motorist (looking at the black clouds): "I think it's going to rain" *C / M / U*
(3) Customer in stationery shop: "Could you tell me where I could buy some felt-tip pens?"
Shop girl (who knows she has felt-tip pens in stock): "Yes, you could get some at Woolworths, down the road" *C / M / U*
(4) Mother: "Now tell me the truth. Who put the ferret in the bathtub?"
Son (who knows who did it): "Someone put it there" *C / M / U*

Feedback (1) U (2) U (3) M (therefore unhelpful) (4) U

Practice Now in each of the above situations, say whether the second speaker, although clearly being unhelpful, is telling the truth or not (as far as you can tell).

(1) *Yes / No* (3) *Yes / No*
(2) *Yes / No* (4) *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes (4) Yes

Comment Being co-operative in conversation obviously involves more than simply telling the truth, although truthfulness is part of co-operativeness.

We separate out the following further components of conversational co-operativeness.

1. Relevance – keep to the topic of the conversation.
2. Informativeness – tell the hearer just what he needs to know, no more and no less.
3. Clarity – speak in a way that the hearer will understand.

These principles are called maxims. We shall refer to them as the maxim of relevance, the maxim of informativeness, and the maxim of clarity.

Practice Go back over the situations in questions (1)–(4) above and say whether the utterance of the second speaker in each case is irrelevant (I), less informative than it might have been (LI) or unclear, i.e. difficult for the hearer to understand (U).

(1) *U / LI / I* (3) *U / LI / I*
(2) *U / LI / I* (4) *U / LI / I*

Feedback (1) LI (2) I (3) LI (4) LI

Comment All the situations mentioned so far have been abnormal, in the sense that one of the speakers was deliberately being less than helpful. It is important to move to an analysis of normal situations, in which one or more of the maxims might seem to be being violated, but in fact the hearer's assumption that this is not the case leads him to a particular inference from the speaker's utterance. We will look now at some instances.

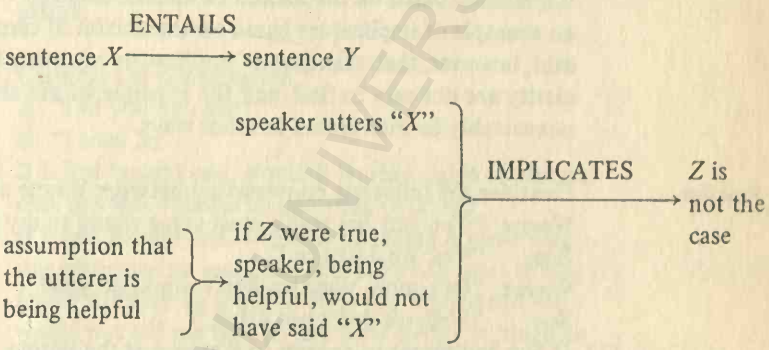
Practice

(1) Does *Mary speaks French* entail *Mary is John's daughter*? *Yes / No*
(2) If I asked "Do any of John's daughters speak a foreign language?", and you replied "Mary speaks French" would it be reasonable for me to conclude that Mary is John's daughter? *Yes / No*
(3) Would I normally assume that you would make a relevant reply? *Yes / No*
(4) In the above situation, if Mary were not in fact John's daughter, would your reply be relevant? *Yes / No*
(5) Would it be sensible for me to reason as follows: If Mary were not John's daughter, his reply would not be

relevant: I assume that his reply IS relevant and therefore Mary IS John's daughter. *Yes / No*

Feedback (1) No (2) Yes (3) Yes (4) No (5) Yes

Comment The example we have just gone through is one of implicature. The proposition that Mary is John's daughter is an implicature of the utterance "Mary speaks French" in this particular situation. What makes this a case of implicature is the crucial role played in the hearer's calculations by the assumption that the speaker is trying to be helpful. The hearer is entitled to draw the inference that Mary is John's daughter only if it can be safely assumed that the speaker is being helpful. A comparison between entailment and implicature can be shown in a diagram.


ENTAILS
sentence X
sentence Y
speaker utters "X"
IMPLICATES
Z is not the case
assumption that the utterer is being helpful
if Z were true, speaker, being helpful, would not have said "X"

The above example used the maxim of relevance. We will go through another example, this time using the maxim of informativeness.

Practice Consider the situation in which a speaker knows that all the students came to the party (assuming some given party and group of students). He is asked whether many students came to the party. In this situation:

(1) Is the utterance "Some of the students came" true? *Yes / No*
(2) Is the utterance "All of the students came" true? *Yes / No*
(3) Is the utterance "Some of the students came" as informative as it could be? *Yes / No*
(4) Is the utterance "All the students came" as informative as it could be? *Yes / No*
(5) Would the hearer normally assume that the speaker would try to be as informative as possible? *Yes / No*
(6) Would the hearer be reasonable to calculate as follows: If all the students had come, he would have said: "All the students came"? *Yes / No*

(7) If the speaker in fact said "Some of the students came", would it be reasonable for the hearer to calculate: He did not say "All the students came" and therefore it is not the case that all the students came (otherwise he would have said so). *Yes / No*

(8) Would the hearer, then, reasonably infer from the utterance "Some of the students came" that not all of the students came? *Yes / No*

Feedback (1) Yes (2) Yes (3) No (4) Yes (5) Yes (6) Yes (7) Yes (8) Yes

Comment The proposition that not all the students came is an implicature of the utterance "Some of the students came" in the above situation. It is an implicature based on the maxim of informativeness. We will give next an example of implicature based on the maxim of clarity. It must be said, however, that examples of implicature involving the maxim of clarity are not easy to find, and the example we are about to give could conceivably be interpreted in other ways.

Practice Consider the following conversation between Wayne and Sue.

Wayne: "You and Jim really must come round to my place some evening."
Sue: "Yes. We'd like to."
Wayne: "Of course, you two don't drink, do you?"
Sue: "Well, we don't not drink."

(1) If Sue had meant to convey to Wayne just the simple proposition that she and Jim drink, which utterance would have achieved that purpose most directly: (a) "We drink" or (b) "We don't not drink"? *(a) / (b)*

(2) Is "We don't not drink" in any sense less clear than "We drink"? i.e. would it take a hearer a bit more thought to figure out what is being conveyed? *Yes / No*

(3) Would it be reasonable of Wayne, in the circumstances, to reason as follows:
If she had meant to tell me simply that they drink, she would have said, in order to be as clear as possible; "We drink". Since she did not say simply "We drink", I assume she is trying to convey something more complex, or subtle, to me. *Yes / No*

(4) Express in your own words the extra message that Sue might have been trying to get across by deliberately using the rather unclear double negative.

Feedback (1) (a) (2) Yes (3) Yes (4) Possibly: We don't carry our lack of enthusiasm for drinking to the extreme of not drinking. Or: We drink, in moderation.

Comment Sue's double negative here could also be an apparent violation of a maxim of brevity, according to which a speaker should try to be as brief as possible. A doubly negative sentence is not as brief as a simple positive sentence. The factors of clarity and brevity are hard to distinguish consistently. We will look at a few more examples of implicature.

Practice Consider the conversation:
A: "Did you buy salt?"
B: "I tried to"

(1) If B had bought salt, would it be reasonable to assume that this was because he had tried to do so? *Yes / No*

(2) If B had bought salt would he be telling A more than was necessary by mentioning that he had tried to buy it? *Yes / No*

(3) Could A reason as follows: If he had bought salt, he would not tell me that he had tried to buy it; since he tells me specifically that he tried to buy it, I conclude that he did not buy salt. *Yes / No*

(4) Is the proposition that B did not buy salt an implicature of his utterance? *Yes / No*

Feedback (1) Yes (2) Yes (3) Yes (4) Yes

Practice Give an implicature of B's utterance in each of the situations below.

(1) A: "Do you love me?"
B: "I'm quite fond of you"

Implicature: B does not love A

(2) A: "Was there a fiddler at the bar last night?"
B: "There was a man scraping a bow across a violin"

Implicature: fiddler not V good

(3) A: "Do you like my new carpet?"
B: "The wallpaper's not bad"

Implicature: ___

Feedback (1) B does not love A. (2) The fiddler at the bar was not very good. (3) B does not like A's new carpet.

Comment Remember that in a case of implicature the hearer crucially makes the assumption that the speaker is not violating one of the conversational maxims, of relevance, of informativeness, or of clarity (or brevity).

Practice Below are some conversations between two people, A and B. After each conversation is given an implicature from B's utterance. In each case, say whether the crucial assumption leading the hearer to this implicature involves the maxim of (R) relevance (I) informativeness (C) clarity (or brevity). Circle your answer.

(1) A: (by an obviously immobilized car) "My car's broken down"
B: "There is a garage round the corner"
Implicature: The garage is open and has a mechanic who might repair the fault. *R / I / C*

(2) A: "What subjects is Jack taking?"
B: "He's not taking Linguistics"
Implicature: B does not know exactly which subjects Jack is taking. *R / I / C*

(3) A: "Have you brushed your teeth and tidied your room?"
B: "I've brushed my teeth"
Implicature: B has not tidied his room. *R / I / C*

(4) A: "Who was that man you were talking to?"
B: "That was my mother's husband"
Implicature: B's mother's husband is not B's father. *R / I / C*

(5) A: "Is Betsy in?"
B: "Her light is on"
Implicature: Betsy's light being on is usually a sign of whether she is in or not. *R / I / C*

Feedback (1) R (2) I (3) I (or perhaps brevity, since B could have simply said "Yes" if he had tidied his room) (4) C (or brevity) (5) R

Comment To reinforce the contrast between implicature and entailment check that none of the implicatures from B's utterances above are actually entailed by the sentences uttered by B.

Practice

In the situations below, fill in an appropriate utterance for B, so that what he says implicates (but does not entail) the conclusion in the right-hand column. In other words, if you were B, what might you say in order to convey the given conclusion to A, without stating it directly?

(1) A: "Let's try the new Arab restaurant round the corner"

B: I'm vegetarian

Implicature: Arab restaurants are likely not to serve vegetarian food.

(2) A: "Meet me at Piccadilly Circus at midnight"

B: I'll bring a friend

Implicature: Piccadilly Circus is not a safe place to be at midnight.

(3) A: "Do you use your local swimming pool very much?"

B: The salt water hurts my eyes

Implicature: B's local swimming pool has salt water.

(4) A: "How much do I owe you now?"

B: I'll have to get my calculator

Implicature: A's debts to B are large and complicated to work out.

Feedback

Some possible replies from B are: (1) "I'm a vegetarian" (2) "I'll bring a large friend with me, in that case" or "You like to live dangerously" (3) "The salt water hurts my eyes" (4) "I'll have to get my calculator"

Comment

Finally in this unit, we mention the possibility of the explicit cancellation of implicatures.

Definition

An implicature of one part of an utterance is said to be CANCELLED when another part of the utterance or a following utterance explicitly contradicts it.

Example

In the utterance "I tried to buy salt, and in fact I succeeded", the implicature (from the first half of the utterance) that the speaker did not in fact buy salt is explicitly cancelled by the assertion in the second half of the utterance.

Practice

(1) Would the utterance "Some of my friends are linguists" normally have as an implicature the proposition that not all of the speaker's friends are linguists? *Yes / No*

(2) Would this implicature be cancelled if the utterance continued " . . . in fact, all of my friends are linguists"? *Yes / No*

(3) Is the sentence *Some, in fact all, of my friends are linguists* actually a contradiction, i.e. necessarily false? *Yes / No*

(4) If a teacher said "The students who answered questions in section A have passed the test", might a reasonable implicature be that students who did not answer questions in section A have not passed the test? *Yes / No*

(5) Suggest a continuation of the teacher's utterance cancelling this implicature.

---

(6) Is the sentence *The students who answered questions in section A have passed the test, just as the students who did not answer those questions have* a contradiction? *Yes / No*

Feedback (1) Yes (2) Yes (3) No (4) Yes (5) "... in fact everyone passed the test" (6) No

Comment Examples such as these illustrate the contrast between implicature and entailment. Entailments cannot be cancelled without contradiction. e.g. in *I killed Cock Robin and Cock Robin did not die*, where the second half contradicts an entailment of the first half, the whole is a contradiction. But a conversational implicature can be cancelled without resulting in a contradiction, as shown in the above practice.

Summary This unit has outlined the notion of conversational implicature, a form of reasonable inference. Implicature, a notion of utterance meaning, contrasts with entailment, a notion of sentence meaning.

Implicature exists by reason of general social conventions, the chief of which is the principle of co-operativeness between speakers. (The idea of implicature, which links logic and conversation, was developed by the philosopher Paul Grice.)

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RECOMMENDATIONS FOR FURTHER STUDY

The following two books are good elementary introductions to Semantics, covering much of the same material as this book, but in their own different ways, and sometimes adopting somewhat different points of view from ours.

G.N. Leech, *Semantics*, 2nd edition, Penguin Books, Harmondsworth (1981).

F.R. Palmer, *Semantics*, 2nd edition, Cambridge University Press, Cambridge (1982).

The next three books are also introductions, but at not quite such an elementary level as the two recommended above. The first, by Kempson, deals with roughly the same subject area as this book, while the other two, by Levinson and Leech, concentrate on questions of the meanings of utterances in context, i.e. roughly the area we have labelled 'interpersonal meaning'.

R. Kempson, *Semantic Theory*, Cambridge University Press, Cambridge (1977).

S. Levinson, *Pragmatics*, Cambridge University Press, Cambridge (1983).

G.N. Leech, *Principles of Pragmatics*, Longman, London (1983).

Finally, the following is an encyclopaedic and authoritative work on semantics, not exactly bed-time reading, but indispensable for serious reference, especially on relatively standard and traditional issues.

J. Lyons, *Semantics* (2 volumes), Cambridge University Press, Cambridge (1977).

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James R. Hurford is Professor of General Linguistics, University of Edinburgh
Brendan Heasley is Consultant (Postgraduate Training), Ain Shams University, Cairo

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